

HONORABLE JAMES L. ROBERT

IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF WASHINGTON  
AT SEATTLE

MICROSOFT CORPORATION,

Plaintiff,

v.

MOTOROLA INC., et al.,

Defendant.

No. C10-1823-JLR

**REDACTED**

PLAINTIFF MICROSOFT  
CORPORATION'S POST-TRIAL  
PROPOSED FINDINGS OF FACT AND  
CONCLUSIONS OF LAW

MOTOROLA MOBILITY, LLC, et al.,

Plaintiffs,

v.

MICROSOFT CORPORATION,

Defendant.

MICROSOFT'S POST-TRIAL PROPOSED  
FINDINGS OF FACT AND CONCLUSIONS OF  
LAW

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1 Plaintiff Microsoft Corporation ("Microsoft") respectfully submits the following  
 2 proposed findings of fact and conclusions of law. To the extent that anything categorized as a  
 3 finding of fact is more properly categorized as a conclusion of law, or vice versa, it should be  
 4 so deemed.

## 5 **FINDINGS OF FACT**

### 6 **I. THE PARTIES**

7 1. Microsoft is a Washington corporation having its principal place of business in  
 8 Redmond, Washington. 10/24/12 Pretrial Order (Dkt. # 493) at 2.

9 2. Motorola, Inc. has changed its corporate name to Motorola Solutions, Inc.  
 10 ("Motorola Solutions"). Motorola Solutions is a Delaware corporation, having its principal  
 11 place of business in Schaumburg, Illinois. 10/24/12 Pretrial Order (Dkt. # 493) at 3.

12 3. Symbol Technologies, Inc. ("Symbol"), which was acquired by Motorola, Inc.  
 13 in 2007, is now a wholly-owned subsidiary of Motorola Solutions. 11/20/12 Tr. 58-59  
 14 (Dailey).

15 4. Motorola Mobility LLC ("Motorola Mobility") is a Delaware limited liability  
 16 company, having its principal place of business in Libertyville, Illinois. Motorola Mobility's  
 17 predecessor-in-interest was Motorola Mobility, Inc. ("MMI"), which was a Delaware  
 18 corporation also having its principal place of business in Libertyville, Illinois. 10/24/12  
 19 Pretrial Order (Dkt. # 493) at 3.

20 5. MMI was an indirect wholly-owned subsidiary of Motorola, Inc. until it was  
 21 spun-off from Motorola, Inc. on January 4, 2011. MMI was acquired by Google, Inc.  
 22 ("Google") on May 22, 2012. Motorola Mobility is MMI's successor-in-interest and a wholly-  
 23 owned subsidiary of Google. 10/24/12 Pretrial Order (Dkt. # 493) at 3.

24 6. General Instrument Corporation ("General Instrument") is a Delaware  
 25 corporation, having its principal place of business in Horsham, Pennsylvania. General  
 26



1 Instrument was a wholly-owned subsidiary of MMI and now is a direct wholly-owned  
2 subsidiary of Motorola Mobility and an indirect wholly-owned subsidiary of Google, Inc.  
3 10/24/12 Pretrial Order (Dkt. # 493) at 3.

4 7. Motorola, Inc., Motorola Solutions, Symbol, MMI, Motorola Mobility, and  
5 General Instrument are collectively referred to herein as “Motorola.”

## 6 **II. STANDARDS & STANDARDS-SETTING ORGANIZATIONS**

### 7 **A. Background**

8 8. The Court has previously found that standards-setting organizations (“SSOs”)  
9 “play a significant role in the technology market by allowing companies to agree on common  
10 technological standards so that all compliant products will work together.” 6/6/12 Order (Dkt.  
11 # 335) at 3.

12 9. The Court has likewise found that “[s]tandards lower costs by increasing  
13 product manufacturing volume, and they increase price competition by eliminating ‘switching  
14 costs’ for consumers who desire to switch from products manufactured by one firm to those  
15 manufactured by another.” 6/6/12 Order (Dkt. # 335) at 3.

16 10. Particularly in the case of interoperability standards, the benefits of  
17 standardization often flow from many participants agreeing to make a common choice, rather  
18 than from the merits of the specific technology chosen. 11/13/12 Tr. 143 (Murphy).

19 11. Participants in the standards-setting process enjoy significant potential benefits  
20 to having their technology incorporated into a standard, independent of potential royalty  
21 income from licensing patents they might have covering their technology. These non-income  
22 benefits can include increased demand for participants’ products, advantages flowing from  
23 familiarity with the contributed technology leading potentially to shorter development lead  
24 times, and improved compatibility with proprietary complements. 11/16/12 Tr. 39-40  
25 (Simcoe).

1           12.     Motorola has recognized that, apart from potential royalties, it benefits from  
2 participating in SSOs because such participation “helps drive the standard to allow [it] to  
3 deliver what we think our customers will want to buy,” “builds a far great understanding of the  
4 standard further in advance, and in greater detail, than would be possible from just buying and  
5 reading the published specification,” and “provides an excellent opportunity to get information  
6 from operators, manufacturers and the regulators.” Ex. 141 at MOTM\_WASH1823\_0539064;  
7 7/17/12 Dep. of H. Benn at 42:15-44:24.

8           **B.     Patented Technology In Standards**

9           13.     The engineers that develop industry standards typically do not know if the use  
10 of the technology they are considering implicates a patent or patents. 11/16/12 Tr. 17:5-8  
11 (Simcoe).

12          14.     For example, Gary Sullivan, Co-chairman of the Joint Video Team that  
13 developed the H.264 video compression standard, did not analyze any particular patents in his  
14 work on the standard. 11/14/12 Tr. 44:4-21 (Sullivan).

15          15.     Ajay Luthra, the other Co-chairman of the Joint Video Team, did not provide  
16 other participants with information about relevant Motorola patents. 11/19/12 Tr. 22:6-12.

17          16.     Much of the technology that is incorporated in industry standards is not  
18 patented. 11/16/12 Tr. 17:9-12 (Simcoe).

19          17.     For example, the key contribution to the H.264 standard was made by Telenor  
20 Group, which did not obtain patents on the technology that it contributed. 11/14/12 Tr. 43:3-8  
21 (Sullivan); 11/14/12 Tr. 114:21-115:5 (Orchard).

22          18.     Likewise, the 802.11 standard was based in large measure on a long history of  
23 research and development by companies, government agencies, and academic institutions that  
24 was in the open literature. 11/15/12 Tr. 96:16-24 (Gibson).

**C. The Risks Of “Hold-up” And Royalty Stacking**

19. Nevertheless, using a standard frequently does require use of patented technology. *See, e.g.*, Ex. 1152 (listing more than 2400 patents determined to be essential to the H.264 standard); 11/16/12 Tr. 108:21-109:9 (Lynde) (stating there are probably thousands of patents essential to the 802.11 standard).

20. When the standard becomes widely used, the holders of “standard essential patents” or “SEPs” obtain substantial leverage to demand more than the value of their specific patented technology even if there were many equally good alternatives to that technology available when the original standard was adopted. After the standard is widely implemented, switching to those alternatives is either no longer viable or would be very costly. 11/13/12 Tr. 140:2-23, 141:18-23 (Murphy); Ex. 1414 at 28036.

21. Where a given patent is “essential” to a standard, it does not follow that that patent was economically valuable beforehand or was “essential” to creating the standard; rather, it becomes “essential” because use of the standard requires infringement of the patent, even if acceptable alternatives could have been written into the standard instead. To be economically valuable before adoption, the patent in question must be the only or a substantially superior way to achieve the desired end; if there were alternatives to achieve that function, and those setting the standard simply chose an approach that happens to be patented, the “essential” patent in question would not be economically valuable. 11/16/12 Tr. 18:9-21 (Simcoe); 11/13/12 Tr. 199:11-200:15 (Murphy).

22. The ability of a holder of a SEP to demand more than the value of its patented technology and to attempt to capture the value of the standard itself is referred to as patent “hold-up.” 11/13/12 Tr. 140:2-23 and 141:18-23 (Murphy); Ex. 1414 at 28036. *See also* 11/19/12 Tr. 166:24-167:22 (Schmalensee) (explaining that the “essence of hold-up” is that

1 while *ex ante* competition constrains what a patent holder can obtain for access to its patent, *ex*  
2 *post*, the technology in the standard does not face that competition).

3 23. The threat of hold-up increases as the standard becomes more widely  
4 implemented and firms make sunk cost investments that cannot be recovered should they be  
5 forced to forego implementation of the standard or the standard is changed. 11/13/12 Tr.  
6 143:1-18 (Murphy); 11/16/12 Tr. 86:20-87:2 (Lynde).

7 24. Hold-up can threaten the diffusion of valuable standards and undermine the  
8 standards-setting process. Ex. 1414 at 28036; 11/13/12 Tr. 144:25-145:11, 147:22-148:13  
9 (Murphy).

10 25. In addition to harming firms that are forced to pay higher royalties, hold-up also  
11 harms consumers to the extent that those excess costs are passed on to them. Ex. 1414 at  
12 28036; 11/13/12 Tr. 144:25-145:6, 147:22-148:13 (Murphy).

13 26. Hold-up by one SEP holder also harms other firms that hold SEPs relating to the  
14 same standard because it jeopardizes further adoption of the standard and limits the ability of  
15 those other holders to obtain appropriate royalties on their technology. 11/13/12 Tr. 144:25-  
16 145:11 (Murphy).

17 27. Complex industry standards like the H.264 and 802.11 standards at issue here  
18 can require the use of hundreds or thousands of SEPs held by dozens of patent holders. Exs.  
19 1150-54 (listing patents claimed or determined to be essential to the H.264 standard and patent  
20 holders that made blanket disclosures); Exs. 1156, 1158-59, 1164 (listing patents claimed or  
21 determined to be essential to the 802.11 standard and patent holders that made blanket  
22 disclosures); 11/16/12 Tr. 108:21-109:8 (Lynde) (the number of SEPs related to the 802.11  
23 standard “generally is acknowledged to be in the thousands”).

24 28. High tech products can comply with dozens or even hundreds of different  
25 standards. For example, a typical PC implements as many as 80 or 90 different formal  
26

standards, and a couple hundred informal interoperability standards. 11/16/12 Tr. 128:2-10 (Lynde).

29. In the context of standards having many SEPs, and products that comply with multiple standards, the risk of the use of post-adoption leverage to exact excessive royalties is compounded by the number of potential licensors, which can result in cumulative royalty levels that can undermine the standards. 11/13/12 Tr. 141:24-142:22, 145:12-146:14 (Murphy); 11/16/12 Tr. 127:23-128:10 (Lynde).

30. The payment of excessive royalties to many different holders of SEPs is referred to as "royalty stacking." 11/13/12 Tr. 141:24-142:22 (Murphy).

#### **D. SSO Intellectual Property Policies**

31. Standards-setting organizations seek to promote widespread adoption of their standards because the interoperability benefits of standards depends on their broad implementation. 11/16/12 Tr. 15:15-20 (Simcoe); 11/19/12 Tr. 136:25-137:3 (Schmalensee).

32. As the Court has previously found:

In order to reduce the likelihood that owners of [standard] essential patents will abuse their market power, many standard setting organizations, including the IEEE and ITU have adopted rules relating to the disclosure and licensing of essential patents. The policies often require or encourage members of the standards setting organizations to identify patents that are essential to a proposed standard and to agree to license their essential patents on reasonable, and non-discriminatory ("RAND") terms to anyone who requests a license. Such rules help to insure that standards do not allow essential patent owners to extort their competitors or prevent competitors from entering the marketplace.

6/6/12 Order (Dkt. # 335) at 3-4. *See also* Ex. 1414 at 28036-37 (describing basic elements of SSO intellectual property policies); 11/16/12 Tr. 19:3-24, 21:24-23:7 (Simcoe) (same); Exs. 1575 (Guidelines for Implementation of Common Patent Policy of the ITU-T/ITU-R/ISO/IEC) and 1568 (IEEE-SA Standards Board By-Laws).

1           33.     As the term is used by SSOs, an “essential” patent is one that is necessary to  
2 implement either an optional or mandatory provision of a standard. 11/16/12 Tr. 17:18-25  
3 (Simcoe); Ex. 1568 at MS-MOTO\_1823\_00004073096 (IEEE-SA Standards Board Bylaws).

4           34.     The Federal Trade Commission has stated that “[t]he most common mechanism  
5 used by SSOs to attempt to prevent patent hold-up is the RAND commitment.” Ex. 1414 at p.  
6 28037.

7           35.     Likewise, Motorola’s expert, MIT economics professor Richard Schmalensee,  
8 has acknowledged that “the RAND commitment and the whole apparatus exists to deal with  
9 hold-up.” 11/19/12 Tr. 142:13-16, 157:20-23 (Schmalensee).

10          36.     The RAND commitment also addresses royalty stacking and the need to ensure  
11 that the aggregate royalties associated with a given standard are reasonable. 11/13/12 Tr.  
12 146:15-147:2 (Murphy); 11/16/12 Tr. 15:14-16:7 (Simcoe).

13          37.     Motorola emphasized the risk of royalty stacking in the standards context in a  
14 submission it made (together with Nokia and Ericsson) to the European Telecommunications  
15 Standards Institute (“ETSI”) in 2006. Ex. 1031 at MOTM\_WASH1823\_0420998  
16 (“cumulative royalties are perceived to be uncertain and often too high, possibly even  
17 prohibitive.”); 11/16/12 Tr. 25:16-24 (Simcoe).

18          38.     In its ETSI submission, Motorola proposed that RAND commitments be  
19 interpreted to require patent holders “to grant licenses on terms that are objectively  
20 commercially reasonable taking into account the overall licensing situation and including the  
21 cost of obtaining all necessary licenses from all other relevant patent holders for the  
22 technologies in the end product.” Ex. 1031 at MOTM\_WASH1823\_0420999; 11/16/12 Tr.  
23 25:25-26:22 (Simcoe).

24          39.     In the same submission, Motorola also advocated a principle of proportionality,  
25 suggesting that “[c]ompensation under FRAND must reflect the patent owner’s proportion of  
26

1 all essential patents. This is not simply a numeric equation but the compensation must, within  
 2 reasonable bounds, reflect the contribution.” Ex. 1031 at MOTM\_WASH1823\_0420999;  
 3 11/16/12 Tr. 25:25-26:22 (Simcoe).

4 40. Motorola sought to “signal to judges in patent litigation that they can and should  
 5 look at the overall cumulative royalty costs for a given standard and not just assess whether the  
 6 terms being offered by one particular licensor are fair and reasonable *in vacuo*.” Ex. 1031 at  
 7 MOTM\_WASH1823\_0420999; 11/16/12 Tr. 76:2-10 (Simcoe).

8 41. While ETSI did not formally modify its intellectual property policy in response  
 9 to Motorola’s submission, the principles that Motorola articulated were already commonly  
 10 understood elements of the RAND commitment. 11/16/12 Tr. 27:5-12, 75:19-76:1 (Simcoe).

11 42. Indeed, Motorola stated in its submission to ETSI that notions that RAND  
 12 royalties must be objectively commercially reasonable taking into account the cost of obtaining  
 13 all necessary licenses from all other relevant patent holders for the technologies in the end  
 14 product and that each patent holder’s compensation should reflect only its proportion of all  
 15 standard essential patents were not new, but were “really in the nature of clarifications of  
 16 *existing* FRAND rules and *commonly understood goals*.” Ex. 1031 at  
 17 MOTM\_WASH1823\_0420999 (emphasis added).

#### 18 1. The ISO/IEC/ITU Common Patent Policy

19 43. The International Organization for Standardization and the International  
 20 Electrotechnical Commission (“ISO/IEC”), and the International Telecommunications Union  
 21 (“ITU”), two standards setting organizations, jointly developed the H.264 standard, which  
 22 relates to video compression and is one of the two standards at issue in this case. 11/13/12 Tr.  
 23 208-209 (Sullivan).

24 44. The ITU and ISO/IEC maintain a common patent policy, the “sole objective” of  
 25 which is to ensure that “a patent embodied fully or partly in a Recommendation | Deliverable  
 26



1 must be accessible to everybody without undue constraints.” Ex. 1575 at  
2 MOTM\_WASH1823\_0602815.

3 45. The ITU/ISO/IEC Common Patent Policy and Implementation Guidelines  
4 encourage disclosure of potentially essential patents “as early as possible” in the standards  
5 development process. Ex. 1575 at MOTM\_WASH1823\_0602808.

6 46. Once a patent holder has disclosed a potentially essential patent or makes a  
7 blanket disclosure stating that it may have a patent or patents essential to a proposed standard  
8 without identifying them specifically, the ITU will seek a licensing commitment from the  
9 patent-holder using a standardized IPR disclosure form. This form provides three options to  
10 the patent holder: (1) the patent holder may commit to license its essential patent(s) on a  
11 royalty-free basis; (2) the patent holder may commit to license its essential patent(s) on RAND  
12 terms and conditions; or (3) the patent holder may decline to make any licensing commitment.  
13 Ex. 1575 at MOTM\_WASH1823\_0602815.

14 47. A patent holder willing to make a licensing commitment is given the option of  
15 making its commitment conditional on “reciprocity.” Ex. 1575 at  
16 MOTM\_WASH1823\_0602818.

17 48. Under the ISO/IEC/ITU policy, when a patent holder has conditioned its  
18 licensing commitment on reciprocity, “the Patent Holder shall only be required to license any  
19 prospective licensee if such prospective licensee will commit to license its essential patent(s)  
20 or essential patent claim(s) for implementation of the same above document free of charge or  
21 under reasonable terms and conditions.” Ex. 1575 at MOTM\_WASH1823\_0602818.

22 49. If the owner of a declared essential patent declines to make a RAND or royalty-  
23 free licensing commitment, the standard must be written to avoid infringing the patent.  
24 Specifically, the ISO/IEC/ITU policy indicates that the approved standard “shall not include  
25 provisions depending on the patent.” Ex. 1575 at MOTM\_WASH1823\_0602815.  
26



1           50.     Motorola Mobility, its predecessors, and its wholly-owned subsidiary General  
2 Instrument submitted several intellectual property disclosures to the ITU in connection with the  
3 development of the H.264 standard. Ex. 2838.

4           51.     All of Motorola's disclosures indicated that it would "grant to an unrestricted  
5 number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and  
6 conditions" licenses conditioned on reciprocity or words to that effect. Ex. 2838; 11/20/12 Tr.  
7 33:21-34:12 (Dailey).

## 8                   2. The IEEE IP Policy

9           52.     The Institute of Electrical and Electronics Engineers Standards Association  
10 ("IEEE-SA" or "IEEE") established the 802.11 standard, which relates to wireless local area  
11 networks and is the second of the standards at issue in this matter.

12           53.     The intellectual property policy of the IEEE is set forth in the IEEE-SA  
13 Standards Board Bylaws and its Operations Manual. 11/16/12 Tr. 27:22-28:9 (Simcoe); Ex.  
14 1568 at MS-MOTO\_1823\_00004073082; Ex. 1130 at MS-MOTO\_1823\_00005246469.

15           54.     The IEEE-SA Standards Board Bylaws provide that IEEE standards may  
16 include "Essential Patent Claims," which it defines as "any Patent Claim the use of which was  
17 necessary to create a compliant implementation of either mandatory or optional portions of the  
18 normative clauses of the [Proposed] IEEE Standard when, at the time of the [Proposed] IEEE  
19 Standard's approval, there was no commercially and technically non-infringing alternative."  
20 Ex. 1568 at MS-MOTO\_1823\_00004073096 (§ 6.1).

21           55.     The Standards Board Bylaws indicate that "[i]f the IEEE receives notice that a  
22 [Proposed] IEEE Standard may require the use of a potential Essential Patent Claim, the IEEE  
23 shall request licensing assurance, on the IEEE Standards Board approved Letter of Assurance  
24 form, from the patent holder or patent applicant." Ex. 1568 at MS-  
25 MOTO\_1823\_000040730976 (§ 6.2).

1           56.     The IEEE Letter of Assurance form allows declared essential patent holders to  
2 provide either “[a] general disclaimer to the effect that the Submitter without conditions will  
3 not enforce any present or future Essential Patent Claims” or “[a] statement that a license for a  
4 compliant implementation of the standard will be made available to an unrestricted number of  
5 applicants on a worldwide basis without compensation or under reasonable rates, with  
6 reasonable terms and conditions that are demonstrably free of any unfair discrimination.” Ex.  
7 1568 at MS-MOTO\_1823\_000040730977 (§ 6.2).

8           57.     The IEEE Letter of Assurance form allows, but does not require, the disclosure  
9 of specific patents or pending patent applications that may be or become essential to the  
10 standard under consideration. 11/16/12 Tr. 19:3:24 (Simcoe); 11/16/12 Tr. 108:21-109:4  
11 (Lynde).

12           58.     A Letter of Assurance that commits to license unspecified patents or pending  
13 applications for a particular standard is called a “blanket” disclosure. 11/16/12 Tr. 19:21-24  
14 (Simcoe); 11/16/12 Tr. 108:21-109:4 (Lynde).

15           59.     Motorola and Symbol Technologies submitted numerous blanket Letters of  
16 Assurance to the IEEE in relation to the 802.11 standard. Exs. 1407, 2839.

17           60.     With these Letters of Assurance, Motorola and Symbol agreed to grant, on  
18 reasonable terms and conditions, licenses to their patents that are essential to the 802.11 on a  
19 worldwide and non-discriminatory basis. 11/20/12 Tr. 32:19-23 (Dailey).

20           61.     Symbol and Motorola submitted their first blanket Letters of Assurance  
21 committing to license their patents essential to the 802.11 standard in 1993 and 1994,  
22 respectively. Ex. 1407 (Symbol Letter of Assurance dated 11/8/1993); Ex. 2839 at  
23 MOTM\_WASH1823\_0000004 (Motorola Letter of Assurance dated 3/1/1994).

24           62.     The IEEE Operations Manual in place at the time that Motorola and Symbol  
25 made their initial RAND commitments with respect to the 802.11 standard provided that  
26

1 “[p]atent holders shall submit to the Patent Committee of the IEEE Standards Board, prior to  
 2 any significant drafting of the standard, a draft of their license that assures that the technology  
 3 will be made available *at nominal competitive costs* to all who seek to use it for compliance  
 4 with an incorporated IEEE standard.” Ex. 1130 at MS-MOTO\_1823\_00005246490 (§ 6.3.2)  
 5 (emphasis added).

6 63. The requirement to license at nominal competitive costs was part of the RAND  
 7 commitment at the time that Motorola and Symbol first committed to license their 802.11 SEPs  
 8 on RAND terms. 11/16/12 Tr. 28:10-30:9 (Simcoe).

### 9 **III. ECONOMIC GUIDEPOSTS FOR ASSESSING RAND TERMS**

#### 10 **A. Basic Principles**

11 64. From an economic perspective, a RAND commitment should be interpreted to  
 12 limit a patent holder to a reasonable royalty on the economic value of its patented technology  
 13 itself, apart from the value associated with incorporation of the technology into the standard.  
 14 11/13/12 Tr. 151:19-153:21 (Murphy).

15 65. Motorola’s expert, Professor Richard Schmalensee, agreed that if you make a  
 16 RAND commitment, you are entitled only “to some ill-defined measure [of] return on the  
 17 value of the [patented] property, but you are not entitled to the incremental value that you get  
 18 because you are part of the standard.” 11/19/12 Tr. 168:21-169:8 (Schmalensee).

19 66. The economic value of patented technology isolated from the value derived  
 20 from incorporation in the standard would ideally be determined by calculating the incremental  
 21 value of the technology compared to the alternatives that could have been written into the  
 22 standard instead. The focus is on the period before the standard was adopted and implemented  
 23 (*i.e., ex ante*). 11/13/12 Tr. 199:9-200:15 (Murphy).

24 67. Professor Schmalensee has written that “FRAND licensing must consider two  
 25 key factors: (1) contribution of the patented invention to the standard and (2) the existence of  
 26

1 any substitute technologies and the general level of competition.” Ex. 293 at 675. *See also*  
2 11/19/12 Tr. 177:20-178:5 (Schmalensee).

3 68. Professor Schmalensee has likewise acknowledged that, in the event of a  
4 dispute regarding RAND royalties, “[t]he various parties could make their cases in court for  
5 the relative values of their IP contributions to the standard, *in the context of other options*  
6 *considered during the standard’s early developmental phases*. If a component had multiple  
7 alternatives before the standard was settled, its incremental contribution, properly measured,  
8 may be close or equal to zero.” Ex. 293 at 705-06 (emphasis added); 11/19/12 Tr. 165:23-  
9 166:6 (Schmalensee).

10 69. In any event, a RAND royalty should be set at a level consistent with the SSOs’  
11 goal of promoting widespread adoption of their standards. 11/13/12 Tr. 139:17-140:1, 203:14-  
12 18 (Murphy).

13 70. In the context of a dispute concerning whether or not a given royalty is RAND,  
14 a proper methodology used to determine a RAND royalty should therefore recognize and seek  
15 to mitigate the risk of patent hold-up that RAND commitments are supposed to avoid.  
16 11/16/12 Tr. 15:14-16:7, 44:10-13, 71:14-25 (Simcoe); 11/13/12 Tr. 144:11-24, 203:14-18  
17 (Murphy).

18 71. Likewise, a proper methodology for determining a RAND royalty should  
19 address the risk of royalty stacking by considering the aggregate royalties that would apply if  
20 similarly situated SEP holders made royalty demands equivalent to those of the patent holder  
21 in question. 11/16/12 Tr. 15:14-16:7, 44:10-13 (Simcoe); 11/13/12 Tr. 203:14-19 (Murphy).

22 72. In its submission to ETSI, Motorola advocated considering the implications of a  
23 given party’s royalty demand in light of the potential demands of other holders of SEPs  
24 relating to the standard. Ex. 1031 at MOTM\_WASH1823\_0420999.  
25  
26

**B. The Selection Of Appropriate Comparables**

73. Given the potential complexity of attempting to determine the hypothetical *ex ante* value of a large number of SEPs years after a standard has been developed, economists look for market-based transactions or comparables that can serve as a proxy for that difficult retrospective effort and are consistent with the underlying purposes of the RAND commitment. 11/13/12 Tr. 152:21-153:21; 203:3-10 (Murphy).

**1. Patent Pools**

74. Patent pools have several features that can make them appropriate benchmarks for establishing RAND terms and conditions. 11/13/12 Tr. 155:9-24, 147:2-21, 152:21-153:21 (Murphy); 11/16/12 Tr. 31:8-22 (Simcoe); 11/16/12 Tr. 84:21-86:4 (Lynde).

75. Such pools are generally focused on a single standard and include only patents that have been analyzed by an independent reviewer and found essential to that standard. 11/13/12 Tr. 156:25-157:10 (Murphy); 11/16/12 Tr. 20:16-21:2 (Simcoe); 11/16/12 Tr. 85:9-12 (Lynde); 11/13/12 Tr. 124:9-17 (Glanz with reference to MPEG LA H.264 patent pool).

76. Consistent with the underlying purpose of the RAND commitment, pools share the SSOs' goal of fostering the success and widespread adoption of the standard, a goal that Motorola itself advocated with respect to the MPEG LA H.264 patent pool. 11/13/12 Tr. 147:2-21 (Murphy); 11/13/12 Tr. 75:2-76:5 (Glanz with reference to MPEG LA H.264 patent pool); Ex. 1642 (with respect to MPEG LA H.264 patent pool, Motorola was in "favor of finding the right mix of terms that will result in a successful license for the marketplace.").

77. Given their desire to facilitate widespread implementation of the standard, pools set rates at levels that implicitly avoid the hold-up and royalty stacking problems that could be a barrier to broad adoption. 11/13/12 Tr. 147:2-21, 155:9-24 (Murphy).

78. Particularly when a pool is formed at or near the time the standard is promulgated or before it is widely implemented, the terms and conditions of the pool

1 arrangement provide a real-world indication of the terms that would have been reached in a  
2 pre-adoption *ex ante* setting – *i.e.*, before implementers have made substantial sunk cost  
3 investments. 11/13/12 Tr. 156:9-14 (Murphy); 11/16/12 Tr. 84:21-85:17 (Lynde).

4 79. Because of their multilateral nature and the expectation that additional patent  
5 holders will eventually join the pool as licensors, patent pools must choose an aggregate  
6 royalty rate covering many different licensors and patents; as a result, pools also address the  
7 royalty stacking problem. 11/13/12 Tr. 125:2-10 (Glanz); 11/13/12 Tr. 147:2-21; 179: 9-14;  
8 203:12-20 (Murphy); 11/15/12 Tr. 84:21-85:8; 89:8-90:1 (Lynde).

9 80. Indeed, pools of SEPs have emerged, in part, to address the problem of royalty  
10 stacking. Ex. 2945 at MOTM\_WASH1823\_0604875, 0604877.

11 81. Because of the need to attract both licensors and licensees, pool royalties must  
12 balance the interests of SEP holders and implementers. Royalties must be set high enough to  
13 attract a critical mass of patent holders and low enough to foster the basic purpose of the  
14 standard itself: widespread adoption (which in turn enhances the total royalty payment to pool  
15 members). Failure to achieve this balance could lead many prospective licensees to implement  
16 a competing standard instead, a problem that Motorola identified in connection with the H.264  
17 standard. 11/13/12 Tr. 74:19-76:5 (Glanz with reference to the MPEG LA H.264 patent pool);  
18 11/16/12 Tr. 89:8-90:10 (Lynde); 11/16/12 Tr. 34:18-35:10 (Simcoe); 11/13/12 Tr. 147:2-21,  
19 156:14-22, 170:2-11 (Murphy); Ex. 1139 at 17604-05 and 11/13/12 Tr. 80:19-81:1 (Glanz)  
20 (Motorola noted that certain proposed MPEG LA pool rates for H.264 were “too expensive for  
21 mobile” devices and would lead to adoption of “alternative video coding technologies.”)

22 82. In a submission to ETSI, Motorola stated that an approach to RAND  
23 determination that looks to collective licensing arrangements like pools was “complementary”  
24 and “synergistic” with the need for RAND terms to produce aggregate reasonable royalties and  
25  
26

1 reflect the principle of proportionality. 11/16/12 Tr. 33:19-34:8 (Simcoe); Ex. 1033 at  
2 MOTM\_WASH1823\_0421106.

3 83. Motorola noted that pools can provide a “one stop shop,” making it easier for  
4 licensees to access large numbers of essential patents in one place. 11/16/12 Tr. 33:14-17; Ex.  
5 1033 at MOTM\_WASH1823\_0421106.

6 84. In the same vein, the U.S. Department of Justice and Federal Trade Commission  
7 *Antitrust Guidelines for the Licensing of Intellectual Property* state that patent pools “may  
8 provide procompetitive benefits by integrating complementary technologies, reducing  
9 transaction costs, clearing blocking positions, and avoiding costly infringement litigation.” Ex.  
10 1032 at § 5.5; 11/16/12 Tr. 36:8-21 (Simcoe).

11 85. The Department of Justice reviewed and approved two of the early standards-  
12 focused patent pools, the MPEG LA MPEG-2 patent pool and the DVD patent pool. 11/16/12  
13 Tr. 37-22-38:2 (Simcoe).

14 86. In its 2006 submission to ETSI, Motorola endorsed the view that the licensing  
15 terms that emerge from pools can be expected to be “reasonable due to the ‘dual’ role of most  
16 of the members (IPR owners and future licensees).” Ex. 1033 at  
17 MOTM\_WASH1823\_0421107; 11/16/12 Tr. 34:18-35:10 (Simcoe).

18 87. Motorola concluded in its submission to ETSI that pool arrangements are good  
19 comparables and provide a “benchmark” for RAND terms and conditions. 11/16/12 Tr. 35:18-  
20 25 (Simcoe); Ex. 1033 at MOTM\_WASH1823\_0421107 (pool licensing terms “provide a  
21 benchmark for the level of Aggregate Reasonable Terms and the proportionality in the public  
22 domain, which will increase transparency”).

## 23 2. *Bilateral Ex Post* Agreements

24 88. Where a patent owner has engaged in hold-up, the hold-up royalties will be  
25 reflected in a bilateral agreement. 11/15/12 Tr. 158:10-15 (Schmalensee).



1           89. If a bilateral agreement was entered into after widespread adoption of a  
 2 standard, it must be scrutinized for evidence of improper hold-up, in part because, up to this  
 3 point, “the RAND commitment hasn’t been fully litigated through” and one cannot simply  
 4 assume that patent owners have always complied with their RAND commitments. 11/13/12  
 5 Tr. 162:19-22, 180:2-22 (Murphy).

6           90. Efforts to interpret the RAND commitment solely as an obligation to negotiate  
 7 simply facilitate hold-up. Absent imposition of a meaningful constraint on the royalties that a  
 8 SEP holder can receive, the skewed bargaining dynamic between a SEP holder and an  
 9 implementer in the context of bilateral negotiation is likely to result in hold-up. 11/13/12 Tr.  
 10 153:22-155:8, 180:2-181:17 (Murphy); 11/16/12 Tr. 51:4-8 (Simcoe).

11           91. As a result, absent facts and circumstances indicating that they were negotiated  
 12 under external conditions that prevented hold-up altogether or that forced the parties to exclude  
 13 hold-up value, *ex post* bilateral license agreements are, as a general matter, a less reliable  
 14 benchmark than collective license arrangements for assessing RAND terms. 11/13/12 Tr.  
 15 180:2-22, 155:9-24 (Murphy).

16           92. A clear judicial statement that a RAND commitment requires more than  
 17 negotiation and, instead, places a meaningful constraint on the ability of SEP holders to capture  
 18 hold-up value or impose royalties that would be unreasonable in the aggregate will facilitate  
 19 agreement in future bilateral negotiations. 11/13/12 Tr. 180:2-13, 181:13-18 (Murphy).

#### 20 **IV. H.264**

##### 21 **A. H.264 Related Patents – Summary**

22           93. Of the Motorola patents that Motorola claims are essential to practice the H.264  
 23 standard, all but two relate to interlaced video. 11/14/12 Tr. 98 (Orchard). Motorola’s other  
 24 two patents, which are not limited to interlaced video, apply only to specific hardware  
 25  
 26



1 implementations, which are not included in any Microsoft product. 11/14/12 Tr. 98, 134-135,  
2 139 (Orchard).

3 94. Interlaced video is not important to H.264 now and will not be in the future.  
4 11/14/12 Tr. 98 (Orchard); 11/19/12 Tr. 65 (Drabik). Most modern video is progressive, not  
5 interlaced, and interlaced video is becoming even less common. 11/14/12 Tr. 104 (Orchard).

6 95. During the development of the H.264 standard, the Motorola patents had known  
7 substitutes that could have been used instead without affecting the performance of the  
8 standard. 11/14/12 Tr. 98 (Orchard).

9 **B. Background On Video Processing**

10 96. Video compression is the processing of video to transform it into compressed  
11 video that requires less data storage than the original uncompressed video. 11/14/12 Tr. 101  
12 (Orchard).

13 97. Video compression is important because modern digital video, particularly high  
14 definition video, requires immense amounts of data storage. 11/14/12 Tr. 101 (Orchard).

15 98. Encoding compresses the original uncompressed video by turning it into a  
16 smaller file or stream that requires less storage capacity and less bandwidth to transmit.  
17 11/14/12 Tr. 101 (Orchard). Decoding turns an encoded smaller file back into an  
18 approximation of the original, uncompressed video. 11/14/12 Tr. 101 (Orchard).

19 99. Coding tools are individual tools that are used in the process of encoding or  
20 decoding. 11/14/12 Tr. 101-102 (Orchard). A video compression standard normally defines  
21 many different coding tools, with different tools used for different purposes. 11/14/12 Tr. 102  
22 (Orchard). Each tool contributes a small amount to the compression of video. 11/14/12 Tr.  
23 101-102 (Orchard). Together, the coding tools provide some aggregate level compression; this  
24 compression level varies from standard to standard. 11/14/12 Tr. 101-102 (Orchard).

# **1. Interlaced And Progressive Video**

100. Interlaced video is a “primitive compression technology” developed around 1940. 11/13/12 Tr. 214 (Sullivan); 11/14/12 Tr. 104 (Orchard). The aim of using interlaced video was to reduce the amount of data being sent in a television broadcast signal by sending only half of a picture at a time. 11/13/12 Tr. 37 (DeVaen). Modern digital techniques compress video more efficiently than interlaced video. 11/13/12 Tr. 214 (Sullivan); 11/14/12 Tr. 102 (Orchard); 11/14/12 Tr. 105 (Orchard). As a result, interlaced video is not widely used today. 11/14/12 Tr. 102 (Orchard).

101. As indicated above, interlaced video compression separately captures the even and odd lines of the pictures comprising a video. 11/14/12 Tr. 102 (Orchard); 11/13/12 Tr. 37 (DeVaen). The odd lines are collectively called a field, and the even lines are another field. Two consecutive fields, an odd field and the corresponding even field, represent an entire picture and are called a frame. 11/14/12 Tr. 103 (Orchard). In old interlaced televisions sets which showed analog television broadcasts, motion appeared smoother if different halves of the picture (alternating between the even and odd lines) were displayed in quick succession, compared to displaying the entire picture repeatedly, but at a slower pace. 11/14/12 Tr. 104 (Orchard).

102. Using interlaced video is no longer necessary because modern flat screen televisions and computer displays rapidly show the entire picture independently of the speed at which television pictures are stored or transmitted. 11/14/12 Tr. 104 (Orchard). Given the capabilities of computer displays and modern televisions, interlaced video “is a solution to a problem that no longer exists.” 11/14/12 Tr. 105 (Orchard).

103. Modern televisions use progressive video, where each picture (or frame) contains all the lines, not just half. 11/14/12 Tr. 104 (Orchard); 11/14/12 Tr. 105 (Orchard).

1 Computer displays all use progressive video; they do not use interlaced video. 11/13/12 Tr.  
2 37-38 (DeVaen); 11/14/12 Tr. 104 (Orchard); 11/14/12 Tr. 105 (Orchard).

3 104. Progressive video is simply a sequence of entire pictures, such as those taken  
4 with a still camera. 11/14/12 Tr. 102 (Orchard).

5 105. Video captured as interlaced video can be converted to progressive form,  
6 particularly if it is eventually going to be displayed on a progressive screen. 11/14/12 Tr. 103  
7 (Orchard). Progressive video is never converted to interlaced video. 11/14/12 Tr. 103  
8 (Orchard).

9 106. Accordingly, interlaced content is very rare in today's world. Archived  
10 interlaced video may still be stored in interlaced format, but this is rare and it is becoming  
11 increasingly rarer, as archived video is converted to progressive form and used that way.  
12 11/14/12 Tr. 102-104 (Orchard).

## 13 2. Compressing Interlaced Video

14 107. Interlaced coding tools increase the efficiency of coding interlaced material.  
15 11/14/12 Tr. 103, 105 (Orchard). These tools were developed for MPEG-2 in 1991 and 1992  
16 and were included in the MPEG-2 standard that was published in 1995. 11/14/12 Tr. 105  
17 (Orchard); Ex. 1479. These tools have been incorporated into other standards such as MPEG-4  
18 that predate H.264. 11/14/12 Tr. 48-49 (Sullivan).

19 108. Adaptive frame/field coding chooses whether to code a particular piece of  
20 interlaced material as a frame, or to code the material as two separate fields. 11/14/12 Tr. 118  
21 (Orchard). Frame coding processes consecutive lines of the picture together. 11/14/12 Tr. 103  
22 (Orchard). Field coding separates odd and even lines and processes each separately. Motorola  
23 did not invent adaptive frame/field coding. 11/14/12 Tr. 118 (Orchard).

24 109. There are two types of adaptive frame/field coding: Picture Adaptive  
25 Frame/Field coding ("PICAFF" or "PAFF") and Macroblock Adaptive Frame/Field Coding  
26

1 (“MBAFF”). 11/14/12 Tr. 27-28 (Sullivan). Motorola did not invent or make the seminal  
 2 contributions to either PICAFF or MBAFF. 11/14/12 Tr. 12, 13 (Sullivan); 11/19/12 Tr. 53  
 3 (Drabik). The PICAFF and MBAFF technologies in H.264 are essentially the same as PICAFF  
 4 and MBAFF in prior video coding standards. 11/14/12 Tr. 12, 13 (Sullivan).

5 110. PICAFF chooses between field and frame coding for an entire picture, so the  
 6 picture is either entirely coded as a frame or as two separate fields. 11/14/12 Tr. 119  
 7 (Orchard). PICAFF is not used for progressive video. 11/14/12 Tr. 103, 106 (Orchard).

8 111. MBAFF chooses between field coding and frame coding for each macroblock,  
 9 thereby choosing to code a macroblock as a frame or as two separate fields. 11/14/12 Tr. 119  
 10 (Orchard). MBAFF is not used for progressive video. 11/14/12 Tr. 120 (Orchard).

11 112. During the development of H.264, Motorola proposed a change to MBAFF  
 12 where the choice between field or frame coding would be made for two macroblocks at a time,  
 13 rather than for each macroblock individually. 11/14/12 Tr. 120 (Orchard). To distinguish the  
 14 two types of MBAFF, MPEG-2’s MBAFF is referred to as single macroblock MBAFF  
 15 (11/14/12 Tr. 120 (Orchard)), and Motorola’s proposal is referred to as paired macroblock  
 16 MBAFF, (11/14/12 Tr. 120 (Orchard)). Paired macroblock MBAFF was adopted as a part of  
 17 the H.264 standard. 11/14/12 Tr. 120 (Orchard).

## 18 **C. Background Of The H.264 Standard**

### 19 **1. Development Of The H.264 Standard**

20 113. The H.264 standard resulted from the contributions of roughly 170 entities, who  
 21 submitted over 2300 contribution documents. 11/14/12 Tr. 108 (Orchard). H.264 is a large  
 22 and technically complex standard developed with the goal of providing significantly improved  
 23 compression compared to prior video standards. Ex. 610; 11/13/12 Tr. 211 (Sullivan).  
 24 Motorola was late to the H.264 development process and had only a limited role in H.264  
 25  
 26

1 development, related entirely to old-fashioned interlaced video. 11/14/12 Tr. 12 (Sullivan);  
2 11/14/12 Tr. 109 (Orchard); 11/14/12 Tr. 12 (Orchard); Ex. 420 at 1.

3 114. The International Organization for Standardization and the International  
4 Electrotechnical Commission ("ISO/IEC"), and the International Telecommunications Union  
5 ("ITU"), two standards setting organizations, jointly developed the H.264 standard. 11/13/12  
6 Tr. 208-209 (Sullivan).

7 115. The MPEG video (Motion Picture Experts Group Video) subgroup of ISO/IEC  
8 and the VCEG (Video Coding Experts Group) subgroup of ITU develop video compression  
9 standards. 11/13/2012 Tr. 208 (Sullivan).

10 116. VCEG performed the early development of what became the H.264 standard.  
11 11/13/12 Tr. 210-213 (Sullivan). As part of the development of the H.264 standard, MPEG  
12 Video and VCEG created the Joint Video Team ("JVT"), a joint organization that finalized the  
13 H.264 video standard. 11/13/2012 Tr. 208-09 (Sullivan).

## 14 2. Timeline Of Development

15 117. Between January 1998, and August 2001, VCEG had compiled a draft of what  
16 would become the H.264 standard. 11/13/12 Tr. 211 (Sullivan).

17 118. By the spring of 2001, VCEG estimated its draft provided about 50 percent  
18 better compression than had been possible in prior standards. 11/13/12 Tr. 212-213 (Sullivan).  
19 In other words, on average VCEG's draft standard required only half the bits to compress  
20 video with the same quality as prior standards. 11/13/12 Tr. 212-213 (Sullivan). The actual  
21 compression achieved, however, varied from video sequence to video sequence. 11/14/12 Tr.  
22 9 (Sullivan).

23 119. In January of 2001, MPEG called for proposals for advanced compression  
24 technology. 11/13/12 Tr. 213 (Sullivan). In July of 2001, VCEG submitted its draft design to  
25 MPEG for evaluation and proposed to join forces with MPEG to finalize the draft standard.  
26

1 11/13/12 Tr. 213 (Sullivan). After testing VCEG's proposal, MPEG adopted it and agreed to  
2 join with VCEG to finalize it as a new standard. 11/13/12 Tr. 213-214 (Sullivan).

3 120. As of the summer 2001, the VCEG design did not include specialized tools for  
4 coding interlaced video. The video compression community recognized that modern digital  
5 compression technologies were superior to the old technique of compressing through interlaced  
6 video scanning and that video content in interlaced format was therefore waning in importance.  
7 11/13/12 Tr. 214 (Sullivan). Had VCEG wanted to include techniques in the new standard to  
8 compress interlaced video efficiently, such tools were readily available from existing  
9 standards. 11/14/12 Tr. 50 (Sullivan).

10 121. Even without interlaced coding tools, the VCEG design could still encode  
11 interlaced video by converting the video into progressive form before encoding it. 11/14/12  
12 Tr. 48 (Sullivan). This process is called de-interlacing. 11/14/12 Tr. 48 (Sullivan).  
13 Alternatively, the VCEG design could code each field in interlaced video as if it were a  
14 progressive picture, or code odd and even fields as separate frames. 11/14/12 Tr. 48  
15 (Sullivan).

16 122. The first version of H.264 was finalized in May of 2003. 11/13/12 Tr. 214  
17 (Sullivan). Like the draft standard from July 2001, it achieved an approximately 50 percent  
18 improvement in compression, on average, over prior standards. The finalized standard did not  
19 materially improve on the mid-2001 draft standard from the standpoint of compression  
20 improvement. 11/13/12 Tr. 215 (Sullivan); 11/14/12 Tr. 9-10 (Sullivan).

### 21 3. Motorola's Contributions

22 123. Motorola's contributions were miniscule when viewed in the context of H.264  
23 as a whole. 11/14/12 Tr. 114 (Orchard); 11/14/12 Tr. 16, 57 (Sullivan). Motorola contributed  
24 only unimportant tweaks to aspects of H.264's interlaced coding tools. 11/14/12 Tr. 12, 57  
25 (Sullivan); 11/14/12 Tr. 109 (Orchard); 11/19/12 Tr. 50-51 (Drabik)

1           124. Motorola became interested in VCEG's work around mid-2001. 11/13/12 Tr.  
2 215 (Sullivan). A Motorola employee, Ajay Luthra, who served as one of the co-chairs of the  
3 JVT, described Motorola as a "late bird" in terms of its involvement in H.264 standard  
4 development. Ex. 420 at 1; 11/19/12 Tr. 21 (Luthra). Motorola made its first proposal at the  
5 first meeting of the JVT in December of 2001, after MPEG and VCEG had already joined  
6 forces. 11/13/12 Tr. 216 (Sullivan). By then, VCEG's summer 2001 design had already  
7 achieved a 50 percent compression improvement over prior standards. 11/13/12 Tr. 216  
8 (Sullivan). As Luthra admitted, Motorola contributed nothing to the summer 2001 design.  
9 11/19/12 Tr. 22 (Luthra).

10           125. Before Motorola began to participate in the development of the H.264 standard,  
11 many other companies and research institutes had already contributed to the development of  
12 VCEG's H.26L draft standard, which led eventually to the H.264 standard. Ex. 420 at 1.  
13 These entities made possible much of the innovation associated with the H.264 standard. They  
14 included Telenor, Nokia, Fraunhofer Heinrich Hertz Institute, and others. 11/13/12 Tr. 215  
15 (Sullivan).

16           126. The only Motorola contributions that were adopted into the H.264 standard  
17 relate to old fashioned interlaced video. 11/14/12 Tr. 109 (Orchard); 11/14/12 Tr. 12  
18 (Sullivan); 11/19/12 Tr. 50-51 (Drabik). After the JVT was formed, Motorola submitted  
19 twenty-five proposals, of which eighteen related to interlaced video and seven related to  
20 wavelet coding. 11/14/12 Tr. 108-109 (Orchard). The JVT did not adopt Motorola's wavelet  
21 coding contributions into H.264. 11/14/12 Tr. 108-109 (Orchard).

22           127. Motorola did not make any contributions that substantively changed the way the  
23 core video coding tools of H.264—prediction, transform, quantization, and entropy coding—  
24 operate compared to previous standards. 11/14/12 Tr. 110 (Orchard).



1           128. During the development of the H.264 standard, Motorola never told the other  
2 participants in the H.264 standard development process about patents it relies on now.  
3 11/19/12 Tr. 22 (Luthra). Motorola did not tell the other participants that it would demand a  
4 2.25% royalty for its patents if Motorola technology were included in the H.264 standard.  
5 11/19/12 Tr. 22 (Luthra).

6                   **4. Vast Scope Of Intellectual Property Relating To The H.264 Standard**

7           129. “[T]he Motorola patents are really a small, very slight sliver” of the technology  
8 employed in the H.264 standard. 11/14/12 Tr. 98 (Orchard).

9           130. Over 2300 contribution documents were submitted to the JVT. 11/14/12 Tr.  
10 108 (Orchard). The largest technology contributor to the H.264 standard was Telenor Group,  
11 which contributed many of the core innovations of H.264 and submitted the August 1999  
12 proposal that became the basis of the first draft of the design. 11/13/12 Tr. 215 (Sullivan);  
13 11/14/12 Tr. 115 (Orchard). Telenor decided not to seek patents on its contributions and  
14 notified the JVT of its decision. 11/14/12 Tr. 52 (Sullivan); 11/14/12 Tr. 115 (Orchard).

15           131. Microsoft also made important technological contributions to the H.264  
16 standard. 11/14/12 Tr. 109 (Orchard). Microsoft has forty U.S. patents that are essential to  
17 H.264. 11/14/12 Tr. 141 (Orchard). Of these, thirty-six patents have already been reviewed  
18 and deemed essential by an independent evaluator who evaluates patents for the MPEG-LA  
19 pool. 11/14/12 Tr. 141 (Orchard). Unlike Motorola (whose contribution was limited to old  
20 fashioned interlaced video), Microsoft made contributions in several important technological  
21 areas. 11/14/12 Tr. 141 (Orchard).

22           132. For example, Microsoft made important contributions in the areas of prediction  
23 and transform. Prediction uses characteristics of one part of a video to estimate the  
24 characteristics of another part of the video so that detailed information about the second part  
25 does not need to be stored. Ex. 575, p. 19. Transform coding represents a smooth area of a  
26



1 picture (e.g., a blue sky background) as a short set of numbers instead of providing brightness  
2 and color information about each point in that smooth area. Ex. 575, p. 19. Microsoft's  
3 innovations fundamentally changed how prediction operates in H.264 compared to previous  
4 standards. 11/14/12 Tr. 109 (Orchard). Microsoft's contributions to transform coding are used  
5 almost all the time in H.264. 11/14/12 Tr. 110 (Orchard). Microsoft's contributions are not  
6 limited to interlaced video but apply generally. 11/14/12 Tr. 110 (Orchard).

7 133. Microsoft's patents that contribute to prediction are Exhibits 890, 893, 924, 906,  
8 840, 1411, 841, 816 and 817. 11/14/12 Tr. 142 (Orchard). The patents that contribute to  
9 transform and quantization are Exhibits 848, 856, 855, 857, 854 and 846. 11/14/12 Tr. 142  
10 (Orchard).

11 134. Another group of Microsoft patents adds advanced functionality to the H.264  
12 algorithm. These patents fall into six categories: (1) the hypothetical reference decoder, which  
13 is fundamental to the way decoders are tested (Exhibit 833 and 1669); (2) time-coding  
14 information (Exhibits 818, 823, 824, 825, 822, 830 and 831); (3) pan and scan, which are  
15 functionalities that allow coded information to be sent to different size displays, handheld  
16 displays, HD TV displays in a uniform way (Exhibits 829, 828, 827); (4) random access points  
17 (Exhibit 870); (5) error resilience, which is important for video over wireless channels  
18 (Exhibits 869, 884 and 895); and (6) color space, which allows for more efficient treatment of  
19 most natural images and video (Exhibit 868). 11/14/12 Tr. 143-144 (Orchard).

20 135. Other Microsoft patents contribute to the core components of the H.264 coding  
21 algorithm and add value to ranges of applications. These patents involve signaling (Exhibits  
22 796, 798, 800 and 842), deblocking, (Exhibit 847), and error resilience (Exhibits 813, 815 and  
23 814). 11/14/12 Tr. 142-143 (Orchard).

24 136. Motorola's technical expert, Timothy J. Drabik did not dispute that the majority  
25 of Microsoft's patents cover important aspects of the H.264 standard. 11/19/12 Tr. 47 (Drabik)

1 (conclusory contention that of Microsoft's forty patents only, five cover minor aspects and  
2 only seven had alternatives).

### 3                   **5. The Profiles And Levels Of The H.264 Standard**

4           137. The H.264 standard describes the formatting that is used to implement various  
5 compression techniques. Because many techniques are allowed, the standard groups these  
6 compression techniques into "profiles." Ex. 574, p. 140. These include the Baseline, Main,  
7 High, and Extended profiles. Ex. 574, p. 140. The standard also defines "levels" ranging from  
8 1 through 5.1 that restrict how the compression techniques allowed by a profile are used. Ex.  
9 574, p. 140; Ex. 610, p. 209. Compliance with the H.264 standard is in reference to a profile  
10 and a level. Ex. 610 at 204.

11           138. To comply with a particular profile and level of the H.264 standard, an H.264  
12 video decoder must contain functionality to decompress any video that was encoded using any  
13 compression techniques allowed by that profile within the restrictions of that level. Ex. 610 at  
14 204; Ex. 574, p. 140.

15           139. H.264 does not require an encoder to use any particular compression technique  
16 even if that technique is allowed by the profiles and levels that the encoder complies with. Ex.  
17 610, p. 201 (H.264 standard specifying that "Encoders are not required to make use of any  
18 particular subset of features supported in a profile); Ex. 574, p. 140. Instead an encoder  
19 complies with a particular profile and level of the H.264 standard if it produces video that can  
20 be decoded by a decoder that complies with that profile and level. Ex. 574, p. 140.

21           140. The Baseline profile prohibits the use of interlaced coding tools. Ex. 574, p.  
22 140; 11/14/12 Tr. 19-20 (Sullivan). Levels below 2.1 and above 4.1 independently prohibit use  
23 of interlaced coding tools regardless of the profile used. Use of interlaced coding tools is  
24 allowed by the Main and High profiles for levels 2.1 through 4.1. 11/19/12 Tr. 37 (Drabik).

1 141. If one wishes to take advantage of any technique allowed by the Main and High  
2 profiles for levels 2.1 through 4.1 that is not allowed in other profiles and levels, one must use  
3 decoders that have interlaced coding functionality, regardless of whether that functionality is  
4 ever used. Ex. 574, p. 1.

5 142. For example, Google, Inc.'s YouTube specifies the High profile in order to  
6 make use of "CABAC" and "B-frame" compression techniques that are allowed by the High  
7 profile but not the Baseline profile—but also specifies that video is never interlaced. So an  
8 H.264 compliant decoder that decodes YouTube H.264 video must include the capability to  
9 decode interlaced video even though that functionality is not used. Ex. 592 at 1.

10 143. All H.264 profiles, including those that do not allow interlaced video, support  
11 high definition video. 11/14/12 Tr. 19-20 (Sullivan). High definition H.264 video is almost  
12 always progressive. For example, *all* video on Microsoft's Xbox Live and Google, Inc.'s  
13 YouTube is progressive. 11/15/12 Tr. 19-20 (Del Castillo); 11/14/12 Tr. 147 (Orchard); 592,  
14 p. 1.

15 **D. Motorola's Patents**

16 144. At the time the H.264 standard was developed, there were acceptable  
17 alternatives to each of Motorola's patents that could have been used instead in the standard  
18 without affecting its performance. 11/14/12 Tr. 117 (Orchard).

19 145. Fourteen of the sixteen Motorola patents that Motorola says are essential to the  
20 H.264 standard relate to interlaced video. 11/14/12 Tr. 106 (Orchard).

21 146. The other two patents Motorola points to apply narrowly to the hardware  
22 implementations disclosed in the patents and have either expired or will expire shortly.  
23 11/14/12 Tr. 98, 134-135, 139 (Orchard). Microsoft sells no H.264 compliant hardware, and  
24 therefore does not infringe these patents. 11/14/12 Tr. 135, 139 (Orchard).

1 147. Dr. Drabik simply failed to perform a meticulous infringement analysis keyed to  
2 Microsoft products. 11/19/12 Tr. 49-50 (Drabik).

3 148. Motorola presented no evidence that a patent pool has ever evaluated any  
4 Motorola patent and determined that it was essential to practicing the H.264 standard.

5 149. Motorola presented no evidence of the validity of any of its H.264 standard  
6 essential patents.

7 150. Dr. Drabik had no opinion about the “specific monetary value” of Motorola’s  
8 H.264 patents. 11/19/12 Tr. 50 (Drabik).

9 151. Dr. Drabik never compared the technical value of Motorola’s H.264 standard  
10 essential patents with those in the MPEG LA pool (11/19/12 Tr. 60 (Drabik)), and he offered  
11 no opinion as to “whether the Motorola patents are more or less important than the 2,500  
12 patents in the MPEG LA pool,” 11/19/12 Tr. 60 (Drabik).

13 **1. Interlaced Video Patents**

14 152. Interlaced video use is of minor and diminishing importance to the H.264  
15 standard. 11/14/12 Tr. 98 (Orchard).

16 153. Motorola’s parent company, Google, does not support interlaced H.264 video in  
17 its products. While Motorola’s expert did not know the “market reasons” why Google did not  
18 support interlaced coding for YouTube, he testified that “it might have something to do with  
19 how they [Google] see the future.” (11/19/12 Tr. 65 (Drabik)).

20 154. Google’s Android operating system also does not support interlaced H.264  
21 video. It uses the Baseline profile of H.264, Ex. 2115 at MOTM\_WASH1823\_0601853,  
22 which does not allow use of the interlaced coding tools (Ex. 574 at MS-  
23 MOTO\_1823\_00004052873 (field coding and adaptive frame/field coding excluded from  
24 Baseline profile); 11/14/12 Tr. 19-20 (Sullivan).

1           155. Microsoft does not support interlaced H.264 video in its Xbox Live service, or  
2 its Silverlight, Zune, Lync, or Skype products. 11/15/12 Tr. 20-21 (Del Castillo); 11/14/12 Tr.  
3 150-151 (Orchard).

4           156. Although obscure video clips may be found on the Internet in H.264 interlaced  
5 format, most web pages that contain video, such as Google's YouTube or Hulu, have no  
6 interlaced video content. 11/14/12 Tr. 147, 149 (Orchard). In the unlikely event that a  
7 Windows user encountered an interlaced H.264 video file on the Internet, Windows allows the  
8 file to be played. 11/14/12 Tr. 147 (Orchard).

9           157. Drabik pointed to three interlaced H.264 videos that he found on the Internet,  
10 but these do not show that interlaced H.264 video is important. 11/19/12 Tr. 61 (Drabik).

11           158. The first is a pirated video from the Pirate Bay website. 11/14/12 Tr. 148  
12 (Orchard). The other two are one or two second-long test videos for use by people in  
13 developing video software. The videos are not intended to be viewed. 11/14/12 Tr. 148  
14 (Orchard).

15           159. Drabik mistakenly pointed to two video samples that were actually not  
16 interlaced H.264 video. The first was video of NBC's Olympics coverage, which was  
17 provided through YouTube. 11/14/12 Tr. 148 (Orchard). YouTube does not allow interlaced  
18 video, and this video is progressive, not interlaced. 11/14/12 Tr. 148 (Orchard). The second  
19 contained NASA videos that are available on a NASA website. These videos were not  
20 compressed using the H.264 standard and were not interlaced. 11/14/12 Tr. 148 (Orchard).  
21 Drabik knew of no other examples of interlaced H.264 video on the Internet. 11/19/12 Tr. 61-  
22 62 (Drabik).

23           160. Motorola offered Exhibit 2342 to suggest that interlaced H.264 video is  
24 common. Exhibit 2342 is a submission, presented by a Motorola employee four months before  
25 the November 2012 trial in this case, calling for interlaced support to be added to the HEVC  
26

1 standard; Exhibit 2342 does not relate to H.264. The television providers discussed in Exhibit  
2 2342 broadcast in MPEG-2 in the United States, not H.264. 11/14/12 Tr. 153 (Orchard).

3 161. When that MPEG-2 video is recompressed into H.264, it is almost always  
4 converted to progressive if it is interlaced. 11/13/12 Tr. 214 (Sullivan) (explaining that the  
5 modern techniques in H.264 compress more efficiently than using interlaced video).

6 162. Exhibit 2342 provides an example of interlaced television that Dr. Drabik cited  
7 in error: coverage of the London Olympics. When the London Olympics was distributed as  
8 H.264, that distribution was in progressive form. 11/14/12 Tr. 148 (Orchard).

9 163. For the broadcast channels listed in Exhibit 2342 were discussed at trial as  
10 possibly being distributed as H.264 video, that distribution was progressive over Xbox Live,  
11 not interlaced. 11/15/12 Tr. 31 (Del Castillo) (explaining that, except in three cases, the Xbox  
12 Live software did not allow the fifty-five providers listed in Exhibit 2161 (including three also  
13 listed in Exhibit 2343) to use interlaced H.264 video, and that two of the exceptions, French  
14 and Spain provider Canal and U.K. provider BSkyB, likely provided only progressive video  
15 even without that software restriction).

16 164. Motorola's interlaced H.264 patents are not used for encoding or decoding  
17 progressive video. 11/14/12 Tr. 106 (Orchard).

18 165. Dr. Drabik offered the conclusory unsupported opinion that interlaced coding  
19 tools could be used to encode progressive video but never explained how that could be done.  
20 He made no such claim in his expert report. 11/19/12 Tr. 57 (Drabik). At trial, he testified that  
21 he first heard that interlaced coding could be used with progressive video from a Motorola  
22 employee whom he encountered in his work on this case. 11/19/12 Tr. 57-58 (Drabik).

23 166. The Motorola employee who suggested that it was possible to use interlaced  
24 coding tools with progressive video did not identify anyone who had actually done so and did  
25 not refer Drabik to any engineering or scientific publications that discussed using interlaced  
26

1 coding tools with progressive video. 11/19/12 Tr. 58-60 (Drabik). Dr. Drabik was not aware  
2 of any Microsoft product being used to decode progressively captured content that was  
3 compressed using field coding. 11/19/12 Tr. 60 (Drabik).

4 **a. MBAFF Patents**

5 167. Motorola's MBAFF patents are Exhibits 271, 272, 273, 274, 275, 276, 277 and  
6 278. 11/14/12 Tr. 116 (Orchard). All of these patents stem from the same initial patent  
7 application, and they all share the same specification. 11/14/12 Tr. 116 (Orchard).

8 168. Motorola did not invent MBAFF. 11/14/12 Tr. 12 (Sullivan). MBAFF had  
9 already been used to compress video in prior video standards, such as the MPEG-2 standard  
10 and the MPEG-4 standard. 11/14/12 Tr. 12 (Sullivan). In terms of functionality and  
11 performance, MBAFF in H.264 is essentially the same as MBAFF in MPEG-2. 11/14/12 Tr.  
12 50, 59, 56-57 (Sullivan).

13 169. An alternative to the paired macroblock MBAFF as used in H.264 would have  
14 been to use the single macroblock MBAFF as used in MPEG-2. 11/14/12 Tr. 120-121  
15 (Orchard); Exs. 782, 785. No test results show that paired macroblock MBAFF performs any  
16 better than single macroblock MBAFF. 11/14/12 Tr. 121 (Orchard); 11/14/12 Tr. 51-52  
17 (Sullivan).

18 170. During the development of H.264, Motorola provided the JVT with test results  
19 that compared using paired macroblock MBAFF with using no adaptive frame/field technique.  
20 Motorola also provided test results that compared using paired macroblock MBAFF with using  
21 PICAFF. Motorola never supplied the JVT with data for the relevant comparison of paired  
22 macroblock MBAFF with single macroblock MBAFF. 11/14/12 Tr. 122 (Orchard); Ex. 656.  
23 Likewise, the documents that Motorola cited in its trial brief (Moto. Tr. Br., p. 18) as allegedly  
24 showing the performance improvement of paired macroblock also compared paired  
25 macroblock MBAFF with PICAFF. 11/14/12 Tr. 123 (Orchard); Exs. 2227, 2274.  
26



1 171. Motorola's own test results show that single macroblock MBAFF is as efficient  
2 as paired macroblock MBAFF. Exhibit 423 reports a Motorola comparison of single  
3 macroblock MBAFF to PICAFF, (11/16/12 Tr. 202 (Luthra)), while Exhibit 2209 reports a  
4 Motorola comparison of paired macroblock MBAFF to PICAFF. 11/16/12 Tr. 205 (Luthra).  
5 The graphs in those exhibits show the efficiency gain of the MBAFF types over PICAFF.  
6 11/16/12 Tr. 206 (Luthra). One video, "Mobile (IP)", was used in both sets of tests. Ex. 423 at  
7 16; Ex. 2209 at 9.

8 172. In Exhibit 423, the bit rate of single macroblock MBAFF at 31 dB quality is  
9 approximately 2804 kb/sec while the bit rate of PICAFF for the same clip and quality is  
10 approximately 2569 kb/sec. Ex. 423 at 16 (Fig. 19). Thus, the efficiency gain of single  
11 macroblock MBAFF over PICAFF was approximately 8.4%:  $(2804-2569)/2804$ . Ex. 423 at  
12 16.

13 173. In Exhibit 2209, the bit rate of paired macroblock MBAFF for "Mobile (IP)" at  
14 32 dB is approximately 4400 kb/sec while the bit rate of PICAFF for the same clip and quality  
15 is approximately 4175 kb/sec. Ex. 2209 at 9 (Fig. 10). Thus, for this comparison, the  
16 efficiency gain of paired macroblock MBAFF over PICAFF was only approximately 5.1%:  
17  $(4400-4175)/4400$ . Ex. 2209 at 9. These results suggest that the paired macroblock approach  
18 that Motorola advocated was, in fact, inferior to single macroblock MBAFF.

19 **b. PICAFF Patents**

20 174. Motorola's PICAFF patents are also unimportant to the H.264 standard because  
21 single macroblock MBAFF was an acceptable alternative that could have been used instead.  
22 11/14/12 Tr. 124 (Orchard).

23 175. The PICAFF patents are Exhibits 280, 281, and 282. 11/14/12 Tr. 116  
24 (Orchard). These patents share the same specification and stem from the same original patent  
25 application. 11/14/12 Tr. 116 (Orchard). PICAFF technology was proposed for use in the  
26



1 MPEG-2 standard between 1991 and 1992. 11/14/12 Tr. 105, 123 (Orchard); 11/14/12 Tr. 13  
2 (Sullivan). There is no significant difference in the type or performance of PICAFF in H.264  
3 as compared with PICAFF in the prior standards. 11/14/12 Tr. 13, 50 (Sullivan).

4 176. The H.264 standard could have used single macroblock MBAFF as was  
5 employed in MPEG-2. 11/14/12 Tr. 124 (Orchard); Exs. 782, 785, 1479. That technique was  
6 available to the JVT during the development of the H.264 standard and could have been used  
7 instead of the Motorola PICAFF patents. Luthra Dep. Tr. 89:22-90:2.

8 177. There are no performance benefits to using PICAFF as proposed by Motorola  
9 instead of single macroblock MBAFF. To the contrary, test results show that PICAFF  
10 performs worse than single macroblock MBAFF. 11/14/12 Tr. 124-125 (Orchard). Motorola's  
11 own test results showed that single macroblock MBAFF was more efficient than PICAFF in  
12 every instance tested. Ex. 423 at 12-16.

13 **c. Alternate Scan Patents**

14 178. Motorola's alternate scan patents are Exhibit 265 and Exhibit 266. They share  
15 the same specification. 11/14/12 Tr. 116 (Orchard); Ex. 265; Ex. 266.

16 179. Alternate scans are used for scanning transform coefficients in interlaced video.  
17 11/14/12 Tr. 125 (Orchard). Progressive video is scanned using the zigzag scan. 11/14/12 Tr.  
18 125 (Orchard). These alternate scan path patents do not apply to progressive video. 11/14/12  
19 Tr. 125 (Orchard).

20 180. Motorola did not invent scanning. 11/14/12 Tr. 125 (Orchard). Nor did  
21 Motorola invent using an alternate scan for interlaced video. MPEG-2 specified an alternate  
22 scan, which Sony proposed to the JVT before Motorola proposed its scan path. Ex. 656 at 1, 2  
23 (Fig 2.1).

24 181. The JVT had alternatives to the scan paths in Motorola's patents that could have  
25 been used in the H.264 patent instead. Sony proposed its own four-by-four alternate scan and  
26

1 the MPEG-2 eight-by-eight alternate scan for use with interlaced video in H.264. 11/14/12 Tr.  
2 126 (Orchard) (citing Ex. 653); Ex. 653.

3 182. The natural and best alternative to Motorola's four-by-four scan of Exhibit 266  
4 would have been the four-by-four scan path Sony proposed for the H.264 standard. 11/14/12  
5 Tr. 126, 128 (Orchard); Ex. 653. No tests directly compared Sony's scan path with Motorola's  
6 scan path, but both scans were separately shown to perform modestly better than the zigzag  
7 scan path for interlaced video. 11/14/12 Tr. 127, 128 (Orchard); Ex. 653, 710, 2281. The  
8 average performance of Sony's scan path compared to the zigzag scan path was slightly better  
9 than the average performance of the Motorola scan path compared to the zigzag scan path.  
10 11/14/12 Tr. 127-130 (Orchard).

11 183. In fact, Motorola's inventors reported to the JVT that their test results showed  
12 that performance of their scans was "consistent" with the performance of the Sony scans, and  
13 initially believed that they had copied a Sony scan. Ex. 675 at 2 ("Since our data was also  
14 consistent with a 4x4 blocksize as described in [Exhibit 653 (Sony alternate-scan proposal)],  
15 we used the same 4x4 alternate scan as used there").

16 184. Using the Sony four-by-four scan path in H.264 would have led to comparable  
17 performance for interlaced video if the JVT had selected it rather than the Motorola scan path.  
18 11/14/12 Tr. 128 (Orchard).

19 185. The best alternative to the eight-by-eight scan of Exhibit 265 would have been  
20 the MPEG-2 eight-by-eight alternate scan proposed to the JVT by Sony. 11/14/12 Tr. 126  
21 (Orchard citing Ex. 653); Ex. 653. No tests compared the Motorola eight-by-eight scan path to  
22 the MPEG-2 alternative.

23 186. The documents Motorola cited in its trial brief, (Moto Tr. Br. at 19), as  
24 allegedly showing the value of Motorola's alternate scan paths did not compare Motorola's  
25 scan paths with the best alternative. Instead they compared the performance of Motorola's  
26

1 alternate scans with the progressive zigzag scan path on interlaced video. 11/14/12 Tr. 128-  
 2 129 (Orchard); Ex. 2281; Ex 710. The progressive zigzag scan path was known not to work  
 3 well with interlaced video. 11/14/12 Tr. 128 (Orchard); Exs. 2227, 2274.

#### 4 **d. The Eifrig Patent**

5 187. The Eifrig patent (U.S. Patent No. 6,005,980) is Exhibit 268 and relates only to  
 6 interlaced video. 11/19/12 Tr. 54-55 (Drabik). It involves using three specific motion vectors  
 7 with interlaced video. 11/14/12 Tr. 132 (Orchard). Exhibit 268 does not apply to progressive  
 8 video.

9 188. For interlaced video, Exhibit 268 proposes to predict the motion using the same  
 10 three blocks that the prior art used for progressive video. 11/14/12 Tr. 130-131 (Orchard).

11 189. In particular, the draft H.263 standard from May 1996 showed the same blocks  
 12 as Exhibit 268. 11/14/12 Tr. 132 (Orchard); Ex. 611. It would have been intuitive for a person  
 13 of ordinary skill to use the same blocks for interlaced video that were already known to work  
 14 for progressive video. 11/19/12 Tr. 56 (Drabik); 11/14/12 Tr. 131 (Orchard).

15 190. Alternatives to Exhibit 268 at the time the H.264 standard was adopted included  
 16 using a different set of three blocks from the same neighborhood. 11/14/12 Tr. 131 (Orchard).  
 17 Writing this alternative into the H.264 standard would not have degraded performance.  
 18 11/14/12 Tr. 117 (Orchard).

#### 19 **2. The Expired '419 Patent**

20 191. Exhibit 270 expired in October 2011. 11/14/12 Tr. 133 (Orchard); 11/19/12 Tr.  
 21 56-57 (Drabik); Ex. 270.

22 192. The claim of Exhibit 270 that were analyzed by Motorola and its expert contain  
 23 means-plus-function limitations. As a result, these claims only cover structures disclosed in  
 24 the specification and their equivalents. 11/14/12 Tr. 134 (Orchard). One of skill in the art  
 25 would have understood that Exhibit 270 discloses only specific hardware implementations of  
 26

1 the means-plus-function elements. 11/14/12 Tr. 134-135 (Orchard). Particularly considering  
2 its date, one of ordinary skill would not understand Exhibit 270 to disclose software structures.  
3 11/14/12 Tr. 134-135 (Orchard). Motorola presented no evidence that Exhibit 270 discloses  
4 software structures or algorithms, or that the disclosed hardware structures would have been  
5 viewed by a person of ordinary skill as equivalent to software structures or algorithms.

6 193. Exhibit 270 claims a method for performing motion compensation on a block,  
7 but allows the choice of either applying the method to the entire block or to four subblocks  
8 independently. 11/14/12 Tr. 133 (Orchard).

9 194. Alternatives to Exhibit 270 that could have been adopted by the JVT include  
10 similar methods of motion compensation on blocks or subblocks described in Exhibits 1477,  
11 633, 462, and 632. 11/14/12 Tr. 135 (Orchard).

### 12 3. The Expiring '968 Patent

13 195. Exhibit 283 (U.S. Patent 5,376,968) expires in March 2013. 11/14/12 Tr. 138  
14 (Orchard); Ex. 283.

15 196. The claim of Exhibit 283 that was analyzed by Motorola and its experts  
16 contains means-plus-function limitations. Ex. 283; 11/14/12 Tr. 139 (Orchard). The '968  
17 patent discloses only particular hardware implementations of the mean-plus-function elements  
18 and discloses nothing that would suggest to one of ordinary skill in the art software structures  
19 or an algorithm. 11/14/12 Tr. 139 (Orchard). Particularly considering its date, one of ordinary  
20 skill would not understand Exhibit 283 to disclose software structures. 11/14/12 Tr. 139  
21 (Orchard). Again Motorola presented no evidence that Exhibit 283 discloses software  
22 structures or algorithms, or that the disclosed hardware structures are equivalent to software  
23 structures or algorithms.

24 197. Exhibit 283 describes a specific way of offering options for motion  
25 compensation. One can either motion compensate an entire block, or indicate with a code that  
26

1 the block should be broken up into subblocks so that independent vectors can be sent for each  
2 of the subblocks. 11/14/12 Tr. 138 (Orchard).

3 198. Exhibits 618, 632, and 617 describe alternatives to Exhibit 283 that could have  
4 been adopted by the JVT. 11/14/12 Tr. 139-140 (Orchard).

5 **E. Motorola's H.264 Patents And Microsoft's Products**

6 199. While it is important to Microsoft to offer products that are compliant with the  
7 H.264 standard, this reflects the value of standard compliance and interoperability, not the  
8 value of Motorola's patents. 11/13/12 Tr. 34 (DeVaen); 11/15/12 Tr. 21 (Del Castillo).  
9 Motorola's H.264 patents are not important to Microsoft products. Some products, such as the  
10 Xbox Live service, Silverlight, Zune, Lync, and Skype, do not support interlaced video at all.  
11 Other products such as Windows and certain seldom-used functionality in Xbox do support  
12 interlaced decoding, but users rarely, if ever, encounter interlaced content. 11/14/12 Tr. 151  
13 (Orchard).

14 200. Motorola presented no evidence that users of Microsoft products commonly  
15 encounter interlaced H.264 video. Motorola offered evidence that some AT&T U-verse  
16 content is interlaced and could be received on the Xbox after special software was added. But  
17 that software is no longer available and was installed by only 10,000 to 11,000 users when it  
18 was. 11/15/12 Tr. 24, 33 (Del Castillo).

19 201. The only other contention that interlaced video content is important to users of  
20 Microsoft products was made by Michael Dansky. But Dansky is not an expert in video  
21 compression, 11/20/12 Tr. 23 (Dansky), and the exhibits that Dansky cited as showing the  
22 importance of interlaced video did not relate to interlaced H.264. Dansky discussed Exhibits  
23 2768, 2249, 2724, and 2342. 11/20/12 Tr. 18-21 (Dansky). Exhibit 2768 relates to the  
24 Windows Media Video codec, not H.264. Ex. 2728 at 1. Exhibit 2249 relates to the VC-1  
25 codec, not H.264. Ex. 2249 at 1. The CNET report that Dansky cited in Exhibit 2724 did not  
26

1 mention interlaced video and instead referred to “1080p” and “720p,” which both indicate  
2 progressive video. Ex. 2724 at 1. Exhibit 2342 related to the HEVC codec, not H.264.  
3 Exhibit 2342 at 1.

4 202. Of the two Motorola patents that are not limited to interlaced video, one expired  
5 a year ago and the other will expire in March 2013. 11/13/12 Tr. 34 (DeVaen); Ex. 1409, p. 1.  
6 In any event, neither patent covered Microsoft products because their claims only extend to  
7 specific hardware implementations, as explained above, and the decoders that Microsoft  
8 distributes are all software implementations. 11/14/12 Tr. 135 (Orchard); 11/14/12 Tr. 139  
9 (Orchard).

#### 10 1. Windows

11 203. Windows is an operating system that “provides an abstraction over the  
12 hardware, and presents an application interface” so that “third parties can write programs that  
13 run on the computer.” 11/13/12 Tr. 25-26 (DeVaen). With each version of Windows,  
14 Microsoft adds thousands of features which typically build on the capabilities of previous  
15 releases. 11/13/12 Tr. 28-29 (DeVaen). The new features of Windows 7 are described in two  
16 voluminous books. Ex. 1408; Ex. 1409. Video encoding and decoding is only a tiny part of  
17 what the Windows software does and Windows supports many other video compression  
18 standards in addition to H.264, 11/13/12 Tr. 34 (DeVaen).

19 204. Microsoft first included support for H.264 in Windows with Windows 7 which  
20 was released in October 2009. 11/13/12 Tr. 33 (DeVaen); Ex. 1409, p. 1. Microsoft chose to  
21 implement H.264 in Windows 7 because it was standard. 11/13/12 Tr. 34 (DeVaen).

22 205. There is little need for Windows to be able to decode interlaced H.264 video  
23 content. 11/13/12 Tr. 38 (DeVaen); 11/14/12 Tr. 146 (Orchard). Windows users do not  
24 commonly encounter interlaced H.264 content. 11/13/12 Tr. 38 (DeVaen). The vast majority  
25 of video used with Windows comes from Internet websites where interlaced H.264 video is not  
26

1 found. 11/14/12 Tr. 147, 149 (Orchard); Ex. 592. Microsoft only supports interlaced H.264  
2 video in Windows because decoding such video is part of the standard. 11/13/12 Tr. 38  
3 (DeVaen).

4 206. Most H.264 decoding, in the context of Windows, is not performed by the  
5 Windows product. Many computers have non-Microsoft video devices and software that  
6 perform any necessary H.264 decoding instead of the built-in Windows decoder. 11/13/12 Tr.  
7 33-35 (DeVaen).

8 207. Such software includes the VLC Media Player and Flash. 11/13/12 Tr. 36  
9 (DeVaen). For example, when video from Google, Inc.'s YouTube website is played on a  
10 Windows-based computer, virtually all of the H.264 video content is decoded by non-  
11 Microsoft Flash software. 11/13/12 Tr. 53 (DeVaen).

12 208. Windows is a software product. It lacks the hardware structures that are  
13 required by the means-plus-function elements of the claims of Exhibits 270 and 283 (the '419  
14 and '968 patents respectively) that Motorola's expert analyzed. 11/14/12 Tr. 135, 139  
15 (Orchard). Motorola presented no evidence that Exhibits 270 and 283 cover software  
16 structures like the Windows H.264 decoder.

17 209. Windows 7 can play DVDs, but DVDs are not H.264 encoded, using MPEG-2  
18 instead. 11/14/12 Tr. 147 (Orchard). Broadcast television in the United States uses MPEG-2,  
19 not H.264. 11/14/12 Tr. 153 (Orchard). Windows 7 cannot play Blu-ray discs. 11/19/12 Tr.  
20 67 (Orchard). A Windows computer with a Blu-ray drive must include a third-party  
21 application to decode the video on Blu-ray discs. 11/13/12 Tr. 54 (DeVaen).

22 210. The Windows H.264 encoder does not use H.264 interlaced coding tools.  
23 11/14/12 Tr. 150 (Orchard).

24 211. Windows cannot receive H.264 television feeds from satellite providers or  
25 encrypted H.264 television feeds from cable providers. 11/19/12 Tr. 66-67 (Orchard).



1                   **2. Xbox**

2           212.   Motorola's interlaced H.264 patents contribute nothing to the normal use of the  
3 Xbox 360. 11/14/12 Tr. 144 (Orchard).

4           213.   The major uses of Xbox do not involve decoding interlaced H.264. The biggest  
5 use of the Xbox is to play single player games. 11/14/12 Tr. 144-145 (Orchard). Xbox can  
6 also be used to play multiplayer games using the Xbox Live service. 11/15/12 Tr. (Del  
7 Castillo). Xbox games never contain H.264 video content. 11/15/12 Tr. 19-20 (Del Castillo);  
8 11/14/12 Tr. 145 (Orchard).

9           214.   Xbox is also used, via Xbox Live, to access video from sources such as Hulu  
10 and Netflix. Xbox Live does not support interlaced video, and many of these third-party  
11 sources do not use H.264 and instead use a different video compression standard called VC-1.  
12 11/15/12 Tr. 20-21 (Del Castillo).

13           215.   Xbox cannot play Blu-ray disks. 11/19/12 Tr. 67 (Orchard); 11/15/12 Tr. 22  
14 (Del Castillo).

15           216.   The Xbox can be used to play rented or purchased DVDs, but DVDs use  
16 MPEG-2 and not H.264. 11/14/12 Tr. 145 (Orchard); 11/13/12 Tr. 209-210 (Sullivan);  
17 11/15/12 Tr. 22 (Del Castillo).

18           217.   A web browser was recently added to Xbox. Ex. 3448 at 1. Although the  
19 browser is capable of decoding interlaced video if encountered, Ex. 3448 at 1, interlaced H.264  
20 content is rarely found on Internet web pages, as discussed above.

21           218.   Xbox's software decoder does not include the hardware structures that are  
22 required by the means-plus-function elements of the claims of Exhibits 270 and 283 (the '419  
23 and '968 patents, respectively) that Motorola's expert analyzed. 11/14/12 Tr. 135, 139  
24 (Orchard). Motorola presented no evidence that Exhibits 270 and 283 cover software  
25 structures like the Xbox H.264 decoder.



**3. Other Microsoft Products**

219. Windows Phone 7 and 7.5 do not include a H.264 decoder. 11/14/12 Tr. 150 (Orchard). Windows Phone relies on hardware decoders provided by third parties. Ex. 936 at 1-3.

220. Windows Embedded is an operating system to run on embedded hardware, and it does not support video and does not have a decoder. 11/14/12 Tr. 151 (Orchard). Motorola points only to support for a non-Microsoft decoder from Adobe. 11/19/12 Tr. 34-35 (Drabik citing Ex. 1489); Ex. 1489. Motorola has not presented evidence that the Adobe decoder is used in the normal operation of Windows Embedded.

221. Silverlight, a framework for dealing with multimedia content, does not support interlaced video. 11/14/12 Tr. 150 (Orchard).

222. The Zune, a now discontinued portable media player, does not support interlaced video. 11/14/12 Tr. 150 (Orchard).

223. Lync, a chatting environment, does not support interlaced video. 11/14/12 Tr. 150 (Orchard).

224. Skype, a teleconferencing system, does not support interlaced video. 11/14/12 Tr. 150-151 (Orchard).

**V. 802.11**

**A. The Development Of The 802.11 Standard**

225. 802.11 is a set of standards that allow for companies to build products to a set of specifications for wireless local area networking and is the de facto standard for wireless home networks. 11/15/12 Tr. 87-89 (Gibson).

226. Wireless communications refer to communications without a wire, typically using radio frequencies such as AM/FM radio, satellite communications, and Bluetooth. 11/15/12 Tr. 86 (Gibson). Wireless networking refers to using a wireless link to connect a

1 device, such as a laptop, referred to as a station in the 802.11 standard, with an access point.  
2 The access point may be wired to a modem, which allows for access to the internet. 11/15/12  
3 Tr. 87 (Gibson).

4 227. Wireless networks differ from cellular systems; each are designed for different  
5 purposes. For example, cellular systems require connection from many mobile users to base  
6 stations over longer ranges. Wireless networks are designed for low mobility and a range of  
7 about 100 feet. 11/15/12 Tr. 97 (Gibson).

8 228. The first wireless packet radio network, ALOHAnet was developed in the 1970s  
9 by the University of Hawaii and connected to the ARPANET, the predecessor of today's  
10 internet in 1972. ALOHAnet employed many of the technologies that were ultimately used in  
11 the 802.11 standard. 11/15/12 Tr. 90-91 (Gibson).

12 229. In 1985, the FCC allowed wireless communication technologies in unlicensed  
13 bands, the ISM bands. This decision opened up the possibility of commercial wireless local  
14 area networks. 11/15/12 Tr. 90-91 (Gibson).

15 230. After the FCC decision, in 1990, the IEEE 802 committee established the  
16 802.11 Working Group to create a wireless local area network standard, and companies such as  
17 Zircorn and NCR/AT&T began developing proprietary wireless local area networking  
18 products, including the NCR and AT&T product called WaveLAN in 1991. 11/15/12 Tr. 90-  
19 91(Gibson). The proprietary solutions were expensive and forced users to buy all networking  
20 components from the same manufacturer. 11/15/12 Tr. 92 (Gibson).

21 231. ALOHAnet and WaveLAN served as a roadmap for the development of the  
22 802.11 standard. The systems used data modulation, carriers, multiple access techniques, error  
23 control coding, and direct sequence spread spectrum technologies, which all ended up in the  
24 802.11 standard. 11/15/12 Tr. 91-92 (Gibson).

1           232. The 802.11 Working Group spent seven years developing the first draft of the  
2 802.11 standard. 11/15/12 Tr. 92-93 (Gibson). To develop additional 802.11 functionality,  
3 various 802.11 task groups were formed by the Working Group to develop amendments to the  
4 standard, which are designated with letters such as 802.11a and 802.11b. 11/15/12 Tr. 92-93  
5 (Gibson); Ex. 520.

6           233. The development of the 802.11 standard involved the participation of an  
7 enormous number of entities, with over 1,000 companies participating in the standards-setting  
8 process. 11/15/12 Tr. 94-95 (Gibson); Ex. 514. The 802.11 Working Group has had over 130  
9 meetings since its inception and has formed over 30 different task groups to develop  
10 amendments to the standard. 11/15/12 Tr. 94-95 (Gibson).

11           234. The 802.11 standard today is immense and complex; the current version of the  
12 standard is 2793 pages long. Ex. 386A.

13           235. Some of the later amendments to the 802.11 standard replace prior technologies  
14 in certain areas. For example, 802.11n is a high throughput improvement and generally  
15 replaces 802.11a, 802.11b, and 802.11g. 11/15/12 Tr. 93-94 (Gibson). There are also many  
16 optional portions of the 802.11 standard; a device does not need to implement an optional  
17 portion of the standard in order to be compliant with the 802.11 standard. 11/15/12 Tr. 97-98  
18 (Gibson).

19           236. The development of the 802.11 standard dealt primarily with the  
20 implementation of well-known technologies rather than innovation. The majority of the  
21 technologies available to and/or adopted by the 802.11 drafters were well-known and in the  
22 public domain and not covered by patents. 11/15/12 Tr. 154-155 (Gibson). The technology in  
23 the public domain that was incorporated into the 802.11 standard was based on a long history  
24 of research and development done by companies, government agencies, and academic  
25 institutions. These prior technologies included the central elements of the 802.11 standard,  
26

1 such as data modulation, error control coding, multiple access methods, direct sequence spread  
2 spectrum and orthogonal frequency division multiplexing. 11/15/12 Tr. 96-97 (Gibson).

3 **B. There Are An Immense Number Of Patents That Cover The 802.11**  
4 **Standard**

5 237. There is no formal process for determining whether a patent is essential to the  
6 802.11 standard. 11/15/12 Tr. 98-99 (Gibson). However, companies may declare they have  
7 essential patents in what is known as a letter of assurance (LOA). 11/15/12 Tr. 98-99  
8 (Gibson).

9 238. Over 100 companies have identified over 350 patents and 30 patent applications  
10 in LOAs as essential to the IEEE. 11/15/12 Tr. 99 (Gibson); Exs. 7, 1592. Companies may  
11 also provide “blanket” LOAs to the IEEE, which do not identify specific patents. Ninety-four  
12 companies have filed these blanket LOAs, including wireless communication industry leaders  
13 such as Atheros, Broadcom, Qualcomm, Research in Motion, and Intel. 11/15/12 Tr. 99-100  
14 (Gibson); Exs. 7, 1592. Thus there are likely more than a thousand essential patents to the  
15 802.11 standard, and perhaps several thousand. 11/15/12 Tr. 98 (Gibson); 11/16/12 Tr. 108-  
16 109 (Lynde).

17 239. Atheros is an example of a company that signed a blanket LOA and which owns  
18 patents that are important to the 802.11 standard. 11/19/12 Tr. 118-119 (Williams).

19 240. Marvell also has a very valuable 802.11 portfolio and owns a few hundred  
20 issued patents essential to the 802.11 standard. Marvell’s portfolio is particularly important to  
21 the newer standards such as 802.11n. 11/14/12 Tr. 64 (Ochs).

22 **C. Motorola’s 802.11 Patents**

23 241. In its 2010 demand letter to Microsoft, Motorola identified 53 U.S. patents as  
24 essential to the 802.11 standard, divided across 27 different patent “families.” Ex. 1.

25 242. Motorola now contends that only 24 of its patents are essential to the 802.11  
26 standard, and that it did not analyze any other patents as essential. 11/15/12 Tr. 102-105

(Gibson); Exs. 100, 101, 148, 151, 154, 156, 157, 160, 161, 164, 166, 169, 170, 171, 177, 179, 180, 181, 183, 383, 2013, 2014, 2016, 2019.

243. The majority of Motorola's patents have either expired or will soon expire – of Motorola's 24 patents: 2 patents had expired when Motorola sent its 2010 letter (Exs. 2013, 2014); 3 more expired between then and trial (Exs. 148, 151, 154) and 8 more will expire within 2 years from the end of trial (Exs. 156, 157, 160, 161, 164, 166, 169, 180). *See generally* Ex. 1589 (listing expiration date for all Motorola 802.11 patents).

244. Patents that are essential to optional parts of the standard have a lower value than patents that are essential to the required portions. 11/19/12 Tr. 120 (Williams).

245. Motorola's 802.11 patents are related to isolated, and often optional, technology areas. 11/15/12 Tr. 85, 106-107, 134, 140, 154, 155 (Gibson); Ex. 1589. Motorola's expert concluded that 13 of Motorola's 24 patents were optional to the 802.11 standard. 11/19/12 Tr. 73-74 (Williams).

246. Motorola's expert did not provide any analysis that showed that any of Motorola's patents were essential to the 802.11 standard. *See generally* 11/19/12 Tr. 67-134 (Williams). Nor did Motorola's expert review any patent file histories before concluding that Motorola's patents were essential to the 802.11 standard, and he did not articulate a construction for any term, but instead assumed that every term of every analyzed patent required only its plain and ordinary meaning, a meaning which he also did not articulate. 11/19/12 Tr. 109 (Williams). Using this approach, Motorola's expert determined that two patents, U.S. Patent Nos. 5,319,712 and 5,636,223 were essential to the standard, yet those two patents were judicially determined to be non-essential based on claim construction. 11/19/12 Tr. 107-109 (Williams).

247. Motorola's expert did not consider the validity of the Motorola patents he analyzed. 11/19/12 Tr. 125–126 (Williams). He also ruled out as an alternative to the

1 Motorola patents anything that would have required any changes to other portions of the  
2 802.11 standard. 11/19/12 Tr. 115–116 (Williams).

3 248. Motorola's expert did not assess the contributions of companies other than  
4 Microsoft or Motorola to the 802.11 standard, nor did he evaluate the patents of any company  
5 other than Motorola and Microsoft with respect to 802.11. 11/19/12 Tr. 116–117 (Williams).  
6 Motorola's expert also did not determine the relative importance of Motorola's patents as  
7 compared to any third party patents (including patents in the Via 802.11 patent pool). 11/19/12  
8 Tr. 117–120 (Williams).

9 249. Even accepting Motorola's analysis, the Motorola patents only cover small  
10 pieces of technologies that are themselves a small part of the overall technologies that are  
11 contained in the 802.11 standard. 11/15/12 Tr. 143-144, 147 (Gibson).

12 250. Technically feasible alternatives existed for all of Motorola's patents when the  
13 relevant portions of the 802.11 standard were being developed and adoption of the alternatives  
14 would not have degraded the performance of standard-compliant implementations. 11/15/12  
15 Tr. 114-115, 118-144 (Gibson). Motorola's patents provide little to no benefit over these  
16 alternatives. 11/15/12 Tr. 121-128, 130-135, 138-139, 141-143 (Gibson). Motorola's expert  
17 failed to introduce any evidence that the alternatives proposed by Microsoft's expert for 23 of  
18 the 24 Motorola patents were not feasible alternatives. 11/19/12 Tr. 104–106 (Williams). And  
19 for the remaining patent, Motorola's expert only addressed two of the four alternatives  
20 proposed by Microsoft's expert. 11/19/12 Tr. 104–106 (Williams) (discussing only two of the  
21 four proposed alternatives to Ex. 148).

22 251. The proper analysis of an alternative considers it in the context of the 802.11  
23 Working Group deliberations at the time the standard was being implemented, and allows the  
24 engineers participating in the Working Group flexibility in integrating alternative technology  
25 into the standard. 11/15/12 Tr. 115-116 (Gibson).

**D. Motorola's 802.11 Patents Have Little To No Value To The Standard Or To Microsoft's Products**

252. From a technical standpoint, the Motorola patents have little if any value to Microsoft, because the 802.11 standard writers could have adopted alternatives to the Motorola patents with little impact on the performance of standard-compliant devices and because the Motorola patents have no particular value to Microsoft's products. 11/15/12 Tr. 155 (Gibson).

**1. The 11 Patents That Motorola's Expert Concluded Were Used By Microsoft Are Either Not Used By Or Not Relevant To Microsoft's Products**

253. Motorola analyzed its patents with respect to only the Microsoft Xbox and presented no evidence with respect to these patents regarding other products (such as Microsoft Surface). 11/19/12 Tr. 71 (Williams).

254. The Motorola patents have little to no value to the Xbox console. 11/15/12 Tr. 155 (Gibson). The Xbox does not rely on many of the technologies related to Motorola's 802.11 patents, such as QoS, LDPC, Mesh Networking, Fast Transitions, or Power Management, because those technologies are not used universally in home networks. 11/15/12, 28-32 (Del Castillo); 11/19/12 Tr. 80 (Williams).

255. Motorola contends that the Xbox uses only 11 of the 24 patents its expert has concluded are essential to the 802.11 standard. 11/15/12 Tr. 102-103 (Gibson); Exs. 148, 151, 156, 157, 161, 164, 169, 170, 171, 177, 180. There is no evidence that the Xbox (or any other Microsoft product) uses the other 13 patents that Motorola contends are essential to 802.11. 11/15/12 Tr. 102-104 (Gibson); Exs. 100, 101, 154, 160, 166, 179, 181, 183, 383, 2013, 2014, 2016, 2019.

256. The majority of the 11 patents that Motorola contends are used by the Xbox have either already expired or are expiring soon. Two have already expired (Exs. 148, 151), three more will expire within a year of trial (Exs. 156, 157, 164), three more will expire within



1 two years of trial (Exs. 161, 169, 180) and all will have expired by early 2017. Exs. 170, 171,  
2 177. 11/20/12 Tr. 156 (Lynde).

3 257. Each of the 11 patents that Motorola's expert concluded are used by the Xbox  
4 are either not used by the Xbox, or are related to technologies not relevant to the normal  
5 operation of the Xbox. 11/15/12 Tr. 106-114 (Gibson).

6 **a. The Xbox Console**

7 258. The Xbox is a special purpose computer with the primary function of running  
8 video games. 11/15/2012 Tr. 8-9 (Del Castillo). The original Xbox 360 was launched in 2005.  
9 11/15/2012 Tr. 13 (Del Castillo). In 2010, Microsoft introduced the Xbox 360S, which  
10 included WiFi capabilities. 11/15/2012 Tr. 15 (Del Castillo). A WiFi module made by  
11 Marvell or Atheros provides the Xbox 360 with WiFi capabilities. 11/15/2012 Tr. 24, 48-49  
12 (Del Castillo). Microsoft does not build any of the hardware necessary for WiFi connectivity.  
13 11/15/2012 Tr. 25 (Del Castillo). The Xbox does not send and receive on two antennas at the  
14 same time. 11/15/2012 Tr. 59 (Del Castillo).

15 259. The Xbox contains an optical drive that is used to load and play video games,  
16 but can also be used to watch DVD and listen to CD audio discs. 11/15/2012 Tr. 8-9 (Del  
17 Castillo). Every Xbox has an Ethernet port, so every Xbox can be connected to the internet  
18 using a wired Ethernet link rather than a wireless connection. 11/15/2012 Tr. 25 (Del Castillo).  
19 The Xbox can connect to the internet to download applications and games from the Xbox  
20 LIVE service. 11/15/2012 Tr. 8-9 (Del Castillo). Some applications allow for media  
21 streaming, such as the Netflix application. 11/15/2012 Tr. 8-9 (Del Castillo). Xbox LIVE  
22 allows users to play video games against or with other people over the internet. The service  
23 also allows a customer to make financial transactions, such as buying additional content for the  
24 games that you play. 11/15/2012 Tr. 11 (Del Castillo).



1           260. A user may prefer a wired connection over a wireless connection because wired  
2 connections are not subject to the interference or bandwidth congestion problems faced by  
3 wireless connections. 11/15/2012 Tr. 26 (Del Castillo).

4                           **b. Channel Access Management Patent**

5           261. Motorola identified one patent, U.S. Patent 5,142,533 ("the '533 patent" or Ex.  
6 148) as essential to enhanced distributed channel access (EDCA) functionality and to the  
7 distributed coordination function (DCF), which are methods of accessing a channel within the  
8 802.11 standard. 11/15/12 Tr. 106-107 (Gibson); Ex. 148. Exhibit 148 expired on March 28,  
9 2011. 11/19/12 Tr. 78 (Williams); Ex. 1589. Motorola did not invent channel access in  
10 wireless networks. 11/15/12 Tr. 107 (Gibson).

11           262. The Xbox does not use the '533 patent. To the extent that Motorola relates the  
12 Ex. 148 to EDCA, EDCA is optional and related to quality of service (QoS), which is not used  
13 by the Xbox. 11/15/12 Tr. 106-107 (Gibson); 11/15/2012 Tr. 28 (Del Castillo). Motorola also  
14 relates Ex. 148 to using DCF with RTS/CTS. The Xbox does not use RTS/CTS either.  
15 11/15/12 Tr. 106-107 (Gibson); 11/15/2012 Tr. 28 (Del Castillo).

16           263. The CSMA channel access method in the 802.3-1985 standard is an alternative  
17 channel access method. 11/15/12 Tr. 120-121 (Gibson); Ex. 532. Additionally, the collision  
18 avoidance methods evaluated by Kleinrock and Scholl in their 1980 paper, the ALOHAnet  
19 carrier access scheme and the PCF described in the 802.11 standard were all alternatives to Ex.  
20 148. 11/15/12 Tr. 120-121 (Gibson); Exs. 386A § 9.2.3., 534.

21                           **c. Data Modulation (a/g/n) Patents**

22           264. Motorola identifies two patents as related to data modulation for the "a," "g,"  
23 and, "n" modes of operation and more specifically a portion of the orthogonal frequency  
24 division multiplexing functionality (OFDM), U.S. Patent Nos. 5,272,724 (Ex. 151) and  
25  
26

1 5,519,730 (Ex. 164). 11/15/12 Tr. 107-108 (Gibson); Exs. 151, 164. Motorola did not invent  
 2 OFDM. 11/15/12 Tr. 108 (Gibson).

3 265. Motorola relates claim 14 of Ex. 164 to 802.11 a/g OFDM and asserts that  
 4 PLCP preambles located in subcarrier signals satisfies the first step of this claim. 11/15/12 Tr.  
 5 108 (Gibson); Ex. 164. Ex. 164 expires on May 21, 2013. *Id.* Ex. 164 is not essential under  
 6 Motorola's analysis because the PLCP preamble is not intermixed with the information signals,  
 7 and therefore the Xbox does not use this patent and this patent has no value to Microsoft.  
 8 11/15/12 Tr. 108-109 (Gibson).

9 266. Motorola analyzed Claim 20 of Ex. 151 as essential to synchronizing the timing  
 10 of data signals, using OFDM and the 802.11 standard under the same analysis as Ex. 164.  
 11 11/15/12 Tr. 108-109 (Gibson); Ex. 151. Ex. 151 expired on May 3, 2011, is not essential  
 12 under Motorola's analysis, is not used by the Xbox, and has no value to Microsoft. 11/19/12  
 13 Tr. 78 (Williams); Ex. 1589; 11/15/12 Tr. 108-109 (Gibson).

14 267. The 1985 paper published in the IEEE Transactions on Communications by  
 15 Leonard Cimini is a direct alternative to Exs. 151 and 164 and illustrates inserting pilot streams  
 16 on subchannels for carrier offset estimation. 11/15/12 Tr. 127-128 (Gibson); Ex. 385.

17 268. The 1989 edition of Principles of Digital and Analog Communications (Gibson)  
 18 discusses standard symbol synchronization methods that are used in digital and wireless  
 19 communications that serve as alternatives to Exs. 151 and 164. 11/15/12 Tr. 127-128  
 20 (Gibson); Ex. 530.

#### 21 **d. Network Setup Patents**

22 269. Motorola has analyzed two patents as essential to network setup functionality in  
 23 802.11 – U.S. Patent Nos. 6,069,896 (Ex. 171) and 6,331,972 (Ex. 177). Motorola relates  
 24 claim 17 of the '896 patent and claim 9 of the '972 patent to the initial association of a station  
 25 to an access point, in particular transmitting unsolicited probe requests from a station to an  
 26

1 access point. 11/15/12 Tr. 109, 122 (Gibson); Exs. 171, 177. Ex. 171 expires on October 15,  
2 2016 and Ex. 177 expires on February 3, 2017. Exs. 171, 177. Motorola did not invent  
3 associating stations with access points. 11/15/12 Tr. 109 (Gibson).

4 270. Exhibits 171 and 177 do not relate to infrastructure connections such as those  
5 between access points and stations, but instead relate to communications between peer devices,  
6 such as between station to station. 11/15/12 Tr. 109-110 (Gibson). The Xbox does not use Ex.  
7 171 and 177 in normal operations because the Xbox is normally connected to an access point  
8 in an infrastructure connection and not to another Xbox in a peer-to-peer connection. 11/15/12  
9 Tr. 110 (Gibson).

10 271. One alternative to Exs. 171 and 177 was for the access point to transmit a  
11 beacon, which is unsolicited, then for the station to respond to the beacon in order to make the  
12 connection. 11/15/12 Tr. 122 (Gibson).

13 272. Another alternative system that transmitted unsolicited messages to associate  
14 devices was the WaveLAN system. The WaveLAN system utilized access points transmitting  
15 beacon frames to stations for initial sign-on. 11/15/12 Tr. 122 (Gibson); Exs. 384, 387, 545,  
16 569.

17 **e. Data Modulation (b/g) Patents**

18 273. Motorola identifies three patents as related to data modulation for the “b” and  
19 “g” modes of operation, U.S. Patent Nos. 5,329,547 (Ex. 156); 6,473,449 (Ex. 180), and  
20 5,822,359 (Ex. 170). 11/15/12 Tr. 110 (Gibson); Exs. 156, 170, 180. Motorola did not invent  
21 data modulation or direct sequence spread spectrum (DSSS) and the current method of  
22 connecting is 802.11n, which is much faster and more efficient than the earlier 802.11 “b” and  
23 “g” amendments. 11/15/12 Tr. 110-111 (Gibson). 802.11n will be dominant going forward  
24 and use of the “b” and “g” modes will disappear; therefore the technologies relating to “b” and  
25 “g” modes have little technical value. 11/15/12 Tr. 111 (Gibson).  
26

274. Motorola analyzed Claim 22 of Ex. 170 and Claim 36 of Ex. 156 as essential to the use of reference symbols of channel estimation, and Claim 1 of Ex. 180 as essential to complimentary code key (CCK) modulation in the 802.11 standard (11/15/12 Tr. 111 (Gibson)).

275. The Xbox will normally be connecting to an access point using 802.11n and, therefore, derives very little value from Exs. 156, 170, 180. 11/15/12 Tr. 111 (Gibson).

**i. U.S. Patent Nos. 5,329,547 (Ex. 156) And 5,822,359 (Ex. 170)**

276. Motorola interpreted the claims it analyzed in Exs. 156 and 170 to be concerned with the synchronization field in the high rate direct sequence spread spectrum mode of 802.11b. 11/15/12 Tr. 125-126 (Gibson). Ex. 156 expires on March 11, 2013 and Ex. 170 expires on October 13, 2015. Exs. 156, 170, 1589.

277. The IS-95 standard transmitted a pilot channel that was used for timing recovery for synchronization with the network, channel estimation, and frequency offset correction, and pilot strength, measurements, which would provide an alternative to Ex. 156 and 170. 11/15/12 Tr. 125-126 (Gibson).

**ii. U.S. Patent No. 6,473,449 (Ex. 180)**

278. Motorola analyzed Ex. 180 as related to two devices in the network using the same orthogonal direct sequence spread spectrum codes. 11/15/12 Tr. 126-127 (Gibson). Ex. 180 expires on February 17, 2014. Exs. 180, 1589.

279. Khaled Fazel's 1993 IEEE UCUPC paper describes suppressing unknown interference using direct sequence spread spectrum and the short orthogonal codes, where the short orthogonal codes could be the same codes but used on different carriers, which would be an alternative to Ex. 180. 11/15/12 Tr. 126-127 (Gibson); Ex. 527.

**f. Security Patents**

280. Security is a large and complex topic in the 802.11 standard, spanning roughly 150 pages. 11/15/12 Tr. 112 (Gibson); Ex. 386A. Motorola did not invent security and

1 encryption in wireless networks. 11/15/12 Tr. 112 (Gibson). Open Authentication, or no  
2 security, is the default security mode in 802.11, which is not implicated by the Motorola  
3 patents. 11/15/12 Tr. 112 (Gibson). IEEE 802.11 networks have evolved through several  
4 security approaches, including WEP, TKIP, and CCMP. 11/15/12 Tr. 112 (Gibson).

5 281. 802.11 encryption only encrypts communications from the Xbox to the router in  
6 a user's home and does not protect those communications as they go out onto the Internet.  
7 11/15/12 Tr. 114 (Gibson).

8 282. The Xbox provides its own end-to-end security between the Xbox and another  
9 Xbox or between and Xbox and Xbox LIVE servers independent of the technology claimed in  
10 the Motorola patents because Microsoft does not rely on the network connection security.  
11 Additionally, providers of content that users might access via an Xbox, such as Netflix,  
12 typically protect their content using security that does not implicate 802.11 encryption.  
13 11/15/12 Tr. 26-27 (Del Castillo); 11/15/12 Tr. 113 (Gibson). Any additional encryption  
14 performed by the Xbox for the purposes of 802.11 is redundant to the Xbox security and only  
15 adds complexity and may delay gaming. 11/15/12 Tr. 113-114 (Gibson).

16 283. The Xbox derives little to no benefit from Motorola's security patents (Exs.  
17 157, 161, 169) aside from compliance with the standard. 11/15/12 Tr. 114 (Gibson).

18 **i. U.S. Patent No. 5,357,571 (Ex. 157)**

19 284. Motorola relates Claim 12 of Ex. 157, to the four-way handshake used for  
20 exchanging secure encryption keys, which is a method for exchanging encryption keys used in  
21 802.11 TKIP and CCMP. 11/15/12 Tr. 112 (Gibson). Ex. 157 expires on July 1, 2013. Exs.  
22 157, 1589.

23 285. The key exchange protocol in Whitfield Diffie's paper "New Directions in  
24 Cryptography" is an alternative to Ex. 157. 11/15/12 Tr. 123 (Gibson); Ex. 505.

1           286. The Challenge-Handshake Authentication Protocol (CHAP) provides for key  
2 exchange through the use of a 3-way handshake, which is an alternative to Ex. 157. 11/15/12  
3 Tr. 123 (Gibson); Exs. 570, 506.

4           287. The GSM standard, a digital cellular standard, provides a method of  
5 authenticating devices and creating encryption keys that is an alternative to Ex. 157. 11/15/12  
6 Tr. 123 (Gibson); Ex. 526.

7                           **ii. U.S. Patent Nos. 5,467,398 (Ex. 161) And 5,689,563 (Ex. 169)**

8           288. Motorola relates Claims 1 and 21 of Ex. 161 to the process by which the 802.11  
9 encryption protocols calculate a message integrity code (MIC) to include with data packets.  
10 The MIC is a message that is used to verify that the packet is from the correct source. 11/15/12  
11 Tr. 112-113 (Gibson). Motorola relates claim 1 of Ex. 169 to using a packet sequence number  
12 in the calculation of the MIC. 11/15/12 Tr. 112-113 (Gibson). Ex. 161 expires on July 5, 2014  
13 and Ex. 169 expires on November 18, 2014. Exs. 161, 169, 1589.

14           289. Generating a new encryption key to encrypt the authentication key was known  
15 at the time of the drafting of the standard and is an alternative to Ex. 161. 11/15/12 Tr. 124-  
16 125 (Gibson).

17           290. Generating the authentication key using message data itself would be an  
18 alternative to Ex. 169. 11/15/12 Tr. 124-125 (Gibson).

19                           **2. The Other 13 Motorola Patents Analyzed By Motorola's Expert**  
20                           **Likewise Have Little To No Value To Microsoft Or The 802.11**  
21                           **Standard**

22                           **a. U.S. Patent No. 6,038,263 (Ex. 383)**

23           291. Motorola analyzed Ex. 383 as related to high throughput. 11/15/12 Tr. 129  
24 (Gibson). Ex. 383 expires on July 31, 2017. Exs. 383, 1589. Motorola did not invent high  
25 throughput and Ex. 383 is not essential to the 802.11 standard under Motorola's analysis  
26 because the patent refers to a different orthogonal code sent on spatially separate antennas,

1 whereas the standard sends one binary sequence on one antenna, and then flips the polarity to  
2 get the other binary sequence on the second antenna. 11/15/12 Tr. 129-130 (Gibson). Thus  
3 Ex. 383, as analyzed by Motorola, is not used by any products that comply with the 802.11  
4 standard. 11/15/12 Tr. 130 (Gibson).

5 292. There were existing alternatives to the high throughput techniques incorporated  
6 into the 802.11 standard. For example, Wittneben's 1991 and 1993 papers described using  
7 different filtering techniques to identify different base stations, an approach that can be used  
8 for multiple antennas by filtering the streams on each antenna. 11/15/12 Tr. 130 (Gibson);  
9 Exs. 550, 551.

10 **b. U.S. Patent No. 7,236,477 (Ex. 101)**

11 293. Motorola related Claim 12 of Ex. 101 to certain "fast transition" functionality  
12 in the 802.11 standard where stations participate in the decision to reassociate with a new  
13 access point. 11/15/12 Tr. 130-131 (Gibson). Fast transitions are where a station switches  
14 between access points rapidly, functionality that Motorola did not invent. 11/15/12 Tr. 130-  
15 131 (Gibson). Ex. 101 expires on March 4, 2026. Exs. 101, 1589.

16 294. Having an access point enforce transitions, such as is performed in cellular  
17 systems, is an alternative to Ex. 101. 11/15/12 Tr. 131 (Gibson).

18 **c. U.S. Patent No. 5,311,516 (Ex. 154)**

19 295. Motorola identified one patent as relating to data  
20 fragmentation/defragmentation, Ex. 154, which expired on May 29, 2012. 11/15/12 Tr. 131-  
21 132 (Gibson); Ex. 1589. Data fragmentation refers to breaking a data stream into packets.  
22 11/15/12 Tr. 131-132 (Gibson). Motorola did not invent fragmentation. 11/15/12 Tr. 132  
23 (Gibson). In 802.11 and Ethernet networks, fragmentation does not always occur, but is  
24 controlled by a threshold value that is used to determine when fragmentation should occur.  
25 11/15/12 Tr. 132 (Gibson).



1           296. Fragmentation of larger packets into smaller packets was well-known in the art  
2 since the earliest days of packet communication systems, and these earlier fragmentation  
3 methods would serve as an alternative to Motorola's. Just one example is the internet protocol  
4 version 4 (IPv4) published by the IETF in 1980 as RFC 760, which described procedures for  
5 fragmenting and defragmenting data packets. 11/15/12 Tr. 133 (Gibson); Ex. 539. Indicating  
6 the number of fragments to be received at the beginning of series of fragmented packets rather  
7 than setting a flag to indicate no more fragments is an alternative to Ex. 154. 11/15/12 Tr. 133  
8 (Gibson).

9                           **d. U.S. Patent Nos. 7,143,333, 7,165,205, And 7,493,548 (Exs. 181, 183,**  
10                           **2019)**

11           297. Motorola identifies three patents as relating to Low Density Parity Check Codes  
12 (LDPC codes): Ex. 181, 183 and 2019. 11/15/12 Tr. 133-134 (Gibson); Exs. 181, 183, 2019.  
13 Ex. 181 expires on March 3, 2025, Ex. 183 expires on April 24, 2025, and Ex. 2019 expires on  
14 July 8, 2027. Exs. 181, 183, 1589, 2019.

15           298. LDPC codes are used for error detection and error correction and are an  
16 optional part of the 802.11 standard. 11/15/12 Tr. 133-134 (Gibson). Motorola did not invent  
17 LDPC codes; LDPC codes were invented by Bob Gallager in 1961. 11/15/12 Tr. 133-134  
18 (Gibson).

19           299. The convolutional codes that are required by the 802.11 standard and have been  
20 used effectively for years are a well-accepted alternative to the error control coding approach  
21 provided by LDPC codes. 11/15/12 Tr. 134 (Gibson).

22                           **e. U.S. Patent No. 7,197,016 (Ex. 100)**

23           300. Motorola has analyzed Ex. 100 as essential to the mesh station routing storage  
24 procedures of the mesh networking functionality in the 802.11 standard. 11/15/12 Tr. 135-136  
25 (Gibson); Ex. 100. Ex. 100 expires on March 22, 2021. Exs. 100, 1589. Mesh networking is  
26



1 connecting a number of nodes without an access point connected to the wired network.

2 11/15/12 Tr. 135 (Gibson).

3 301. The 1978 IEEE Proceedings paper by Robert Kahn, et al. *Advances in Packet*  
4 *Radio Technology*, Proceedings of the IEEE, November 1978, pp. 1468-1496, describes  
5 several alternative approaches for Ex. 100. 11/15/12 Tr. 135-136 (Gibson); Ex. 533.

6 302. The Wikipedia page on ad-hoc routing protocols lists a number of different  
7 protocols that have been proposed for building routes and distributing data within a mesh  
8 network that could be alternatives to Ex. 100. 11/15/12 Tr. 135-136 (Gibson); Ex. 565.

9 303. U.S. Patent No. 5,488,608 filed on April 14, 1994 and issued on January 30,  
10 1996 describes a system where routing decisions are stored locally at each node/device in a  
11 routing table, which is an alternative to Ex. 100. 11/15/12 Tr. 135-136 (Gibson); Ex. 548.

12 **f. U.S. Patent No. 6,404,772 (Ex. 179)**

13 304. Motorola relates claim 1 of Ex. 179 to the QoS functions of an access point  
14 distributing data to remote terminals based on the presence of voice packets by giving priority  
15 to voice packets. 11/15/12 Tr. 136-138 (Gibson). The '772 patent expires on July 27, 2020.  
16 Exs. 179, 1589.

17 305. The Xbox does not prioritize voice packets. 11/15/12 Tr. 201 (Gibson).

18 306. Many alternatives existed to Ex. 179. The point coordination function (PCF)  
19 within the 802.11 standard is an alternative to Ex. 179. 11/15/12 Tr. 137-138 (Gibson); Ex.  
20 386A. The real time RTP/RTCP protocols assign priority levels to different types of data and  
21 are alternatives to Ex. 179. 11/15/12 Tr. 137-138 (Gibson); Ex. 540. The ITU ATM Forum  
22 (Asynchronous Transfer Mode—ATM), which provide for the special characteristics of traffic  
23 such as VoIP and multimedia and is an alternative to Ex. 179. 11/15/12 Tr. 137-138 (Gibson);  
24 Exs. 529, 525. The distributed coordination function (DCF) channel access method is also an  
25 alternative to Ex. 179. 11/15/12 Tr. 137-138 (Gibson); Ex. 386A. And the request-to-  
26

1 send/clear-to-send method in the 802.11 standard is an alternative to Ex. 179. 11/15/12 Tr.  
2 137-138 (Gibson); Ex. 386A.

3 **g. U.S. Patent No. 5,412,722 (Ex. 160)**

4 307. Motorola relates claim 1 of Ex. 160 to features of 802.11 key exchange.  
5 11/15/12 Tr. 139 (Gibson); Ex. 160. Ex. 160 expires on July 27, 2020. Exs. 160, 1589.

6 308. There were many known ways to exchange encryption keys, and key exchange  
7 protocols have been known at least since the 1976 publication "New Directions in  
8 Cryptography," by Whitfield Diffie, which is an alternative to Ex. 160. 11/15/12 Tr. 139  
9 (Gibson); Ex. 505. The Challenge-Handshake Authentication Protocol (CHAP) provides for  
10 an alternative to Ex. 160's key exchange through the use of a 3-way handshake. 11/15/12 Tr.  
11 139 (Gibson); Ex. 570. GSM, a cellular system, is a natural alternative to Ex. 160. 11/15/12  
12 Tr. 139 (Gibson); Ex. 526.

13 **h. Power Management Functionality Patents**

14 309. Motorola has analyzed the following U.S. patents as essential to 802.11 power  
15 management functionality: Exs. 166, 2016, 2013, 2014. 11/15/12 Tr. 140-43 (Gibson). Power  
16 management is conserving battery power for mobile devices and is an optional feature in the  
17 802.11 standard. 11/15/12 Tr. 140 (Gibson).

18 **i. U.S. Patent No. 5,560,021 (Ex. 166)**

19 310. Motorola's analysis of Ex. 166 related the patent to placing stations in an active  
20 mode during certain time intervals when the access point indicated that there was waiting data  
21 traffic. 11/15/12 Tr. 140-41 (Gibson). Ex. 166 expires on April 4, 2014. Exs. 166, 1589.

22 311. Within the 802.11 standard itself, alternative power saving methods to Ex. 166  
23 are provided. U.S. Patent No. 5,440,560, filed in March 20, 1992 and issued on August 8,  
24 1995, entitled "Sleep Mode and Contention Resolution Within a Common Channel Medium  
25 Access Method" describes a method of placing stations in sleep and awake modes based on  
26

polling requests by an access point, which would be a natural alternative to the '021 patent. 11/15/12 Tr. 140-41 (Gibson); Ex. 547. Additionally, transmitting packets stored for transmission "at a later time" as discussed in the 802.11 standard also provides an alternative to Ex. 166. 11/15/12 Tr. 140-41 (Gibson); Ex. 386A. And instead of a time period when all user devices are in active mode, a method that allowed only selected devices to be in active mode during a specified time period would be an alternative to Ex. 166. 11/15/12 Tr. 140-41 (Gibson).

**ii. U.S. Patent No. 6,236,674 (Ex. 2016)**

312. Motorola's analysis relates Ex. 2016 to the dynamic power save mode, and transitioning stations between sleep and awake modes. 11/15/12 Tr. 142 (Gibson). The '674 patent expires on February 23, 2016. Exs. 1589, 2016.

313. Several alternatives could have been adopted by the drafters of the 802.11 instead of Ex. 2016. U.S. Patent No. 5,440,560, filed in March 20, 1992 and issued on August 8, 1995, entitled "Sleep Mode and Contention Resolution Within a Common Channel Medium Access Method" describes a method of placing stations in sleep and awake modes based on polling requests by an access point, which would be a natural alternative to Ex. 2016. 11/15/12 Tr. 142 (Gibson); Ex. 547. Also, the Static Power Save Mode within the 802.11 standard itself provides an alternative to Ex. 2016. 11/15/12 Tr. 142 (Gibson); Ex. 386A.

**iii. U.S. Patent Nos. 5,029,183 (Ex. 2013) And 5,479,441 (Ex. 2014)**

314. Motorola analyzed Ex. 2013 and 2014 as related to placing stations into sleep or awake modes based on messages transmitted to get buffered data and receiving an acknowledgement or ACK before data transmission. 11/15/12 Tr. 143 (Gibson). Both Ex. 2013 and 2014 had expired by the time of Motorola's October 2010 letter to Microsoft. Exs. 1589, 2013, 2014.

315. U.S. Patent No. 5,440,560, filed in March 20, 1992 and issued on August 8, 1995, entitled "Sleep Mode and Contention Resolution Within a Common Channel Medium Access Method" describes a method of placing stations in sleep and awake modes based on polling requests by an access point, which would be an alternative to the '183 and '441 patents. 11/15/12 Tr. 143 (Gibson); Ex. 547.

316. Within the 802.11 standard itself, alternative power saving methods are provided. For example, in one mode the access point will wait for a transmission from a station and then "respond with the corresponding [buffered packet] immediately" without waiting for an acknowledgement frame. 11/15/12 Tr. 143 (Gibson); Ex. 386A.

**E. Microsoft Has At Least Seven Patents That Are Essential To The 802.11 Standard**

317. Microsoft has at least seven patents as essential to the 802.11 standard. U.S. Patent Nos.: 7,194,263; 6,745,360; 7,613,426; 6,999,545; 7,974,574; 7,522,551; 7,440,754. 11/15/12 Tr. 144-45 (Gibson); Exs. 435, 503, 345, 434, 439, 438, 437.

318. Motorola's expert admitted that two of the Microsoft patents were essential to 802.11 and failed to articulate any basis as to why the other five were not essential to the 802.11 standard. 11/19/12 Tr. 101 (Williams).

319. Motorola's expert concluded that Motorola's patent portfolio was more valuable than Microsoft's, but did not consider the value of Microsoft's '263 patent (Ex. 435) in performing that analysis. 11/19/12 Tr. 101 (Williams).

**F. If Essential, Motorola's Patents Cover Only A Small Portion Of The 802.11 Standard**

320. Motorola's patents cover less than one percent of the technology in the 802.11 standard. 11/15/12 Tr. 154 (Gibson).

321. Motorola does not have all the essential patents in even the few areas of the 802.11 standard that it identified as relating to its patents. 11/15/12 Tr. 153-54 (Gibson).

322. In every area of technology in which Motorola claims to have innovated, other companies have also obtained patents and committed them to the 802.11 standard. 11/15/12 Tr. 147-48 (Gibson).

**1. Companies Other Than Motorola Have Patents On The Security/Encryption Functionality In 802.11**

323. Nokia disclosed three U.S. patents to the 802.11 Working Group related to encryption of data in communications: 5,987,137; 6,118,775; and 7,120,422. 11/15/12 Tr. 148-49 (Gibson); Exs. 234, 245, 397.

324. LG disclosed two U.S. patents related to encryption of data in communications: 6,839,553 (general authentication process between a network and a mobile station) and 6,347,144 (preventing copying of data streams by placing encryption information inside a header of that stream). 11/15/12 Tr. 148-49 (Gibson); Exs. 477, 475.

325. ETRI disclosed one U.S. Patent related to encryption of data in communications: 7,477,746 (dynamically managing a group transient key). 11/15/12 Tr. 148-49 (Gibson); Ex. 480.

**2. Companies Other Than Motorola Have Patents On The Power Management Functionality In 802.11**

326. Nokia disclosed several patent applications and patents relevant to power management essential to the 802.11 standard: the 09/613952 application (transmission power control scheme for use in an 802.11 operable system), which matured in to U.S. Patent No. 6,842,605; the 20070201467 application, which matured into U.S. Patent Number 7,751,396 (using power-save multi-polling frames to transmit information in a multi-cast transmission); the 20060285517 application, which matured into U.S. Patent Number 7,873,018 (scheduling downlink transmissions on one link, uplink transmissions on another link, and both downlink and uplink transmissions on a third link); and 8,189,506 (802.11-2012 sec. 13.14 - sending

1 IBSS beacons to identify an awake period for the stations and operating in hibernation mode in  
2 between awake periods). 11/15/12 Tr. 150 (Gibson); Exs. 359, 78, 60, 195.

3 327. Agere Systems, Inc. identified patent application 10/368018 which became  
4 RE40032 (using doze and awake states with message synchronization). 11/15/12 Tr. 150  
5 (Gibson); Ex. 494.

6 **3. Companies Other Than Motorola Have Patents On The Channel**  
7 **Access/ Quality of Service Functionality In 802.11**

8 328. Apple Computer identified two U.S. patents related to channel access as  
9 essential to 802.11: U.S. Patent Nos. 4,689,786 (using a three-step handshake method wherein  
10 periods before attempted retransmissions are dynamically adjusted based on recent traffic  
11 history) and 4,661,902 (handshake method and the retransmission timing after an assumed  
12 collision). 11/15/12 Tr. 150 (Gibson); Exs. 89, 88.

13 329. Proxim, Inc. identified at least one patent, U.S. Patent No. 5,231,634, as  
14 essential to the 802.11 standard relating to a collision avoidance scheme when there are  
15 multiple agents in the wireless system. 11/15/12 Tr. 150-51 (Gibson); Ex. 129.

16 330. Agere Systems Inc. identified at least one patent and one application that  
17 matured into a patent as essential to the 802.11 standard relating to collision avoidance: U.S.  
18 Patent No. 5,422,887 (providing equitable access using a CDMA-CD scheme) and Application  
19 10/092,295, which became U.S. Patent No. 6,707,867 (transmitting signals with timing  
20 information related to transmission delays). 11/15/12 Tr. 150-51 (Gibson); Exs. 137, 325.

21 331. Spectrix has identified at least one patent as related to channel access: U.S.  
22 Patent No. 7,643,509 (multiple access/collision avoidance protocol). 11/15/12 Tr. 150-51  
23 (Gibson); Ex. 485.

24 332. Nokia Corp. sent a Letter of Assurance to the 802.11 Working Group disclosing  
25 U.S. Patent No. 7,006,472 as essential to the standard, relating to QoS and selecting the  
26

1 appropriate radio flow for each packet from a selection of predefined flows. 11/15/12 Tr. 150-  
2 51 (Gibson); Ex. 391.

3 333. ETRI identified a U.S. patent related to channel access: 7,616,612 (method of  
4 guaranteeing QoS for VoIP using priority information). 11/15/12 Tr. 150-51 (Gibson); Ex.  
5 484.

6 334. LG identified at least three patents as related to channel access or Qos:  
7 6,469,993 (preparing a table of dynamic priority numbers and each terminal); 7,616,592  
8 (communication between a mobile station and a base station having header information); and  
9 7,653,025 (scheduling packet transmission based on a service identification related to the  
10 packet). 11/15/12 Tr. 150-151 (Gibson); Exs. 483, 476, 486.

11 **4. Companies Other Than Motorola Have Patents On The Data**  
12 **Modulation Functionality In 802.11**

13 335. Spectrix Corp. identified U.S. Patent No. 5,247,380 as essential to the 802.11  
14 standard and related to spread spectrum technology (describing an infrared two-way  
15 communication system). 11/15/12 Tr. 151-152 (Gibson); Ex. 264.

16 336. Nokia Corp. disclosed two applications and two patents related to spread  
17 spectrum technology in 802.11: 20020160769, which became U.S. Patent No. 6,675,012  
18 (dynamic frequency selection that indicates transmission frequency and level of interference);  
19 6,298,035 (estimating separate channel frequencies when using OFDM with two transmitters);  
20 20030050012, which became U.S. Patent No. 6,738,599 (dynamic frequency selection in an  
21 ad-hoc network)); and U.S. Patent No. 6,834,045 (a method for allocating frequencies in a  
22 WLAN operating in the 5 GHz range). 11/15/12 Tr. 151-152 (Gibson); Exs. 321, 255, 327,  
23 357.

24 337. Cisco Systems Inc. also made contributions in the area of data modulation: U.S.  
25 Patent No. 6,654,921 (receipt of signals from multiple transmission management schemes,  
26



1 time-division multiplexing and frequency division multiplexing). 11/15/12 Tr. 151-152  
2 (Gibson); Ex. 318.

3 338. AT&T also identified one patent related to data modulation: U.S. Patent No.  
4 6,430,231 (method for using two or more antennas to receive one more symbol than antennas  
5 by using time-division multiplexing in an orthogonal manner). 11/15/12 Tr. 151-152 (Gibson);  
6 Ex. 260.

7 339. Certain patents in the Via license pool patents relate to data modulation,  
8 including U.S. Patent Nos. 5,307,376 (providing higher quality transmission of a digital signal  
9 interlaced in time and infrequency), 6,925,587 (creating an Interleaver design such that the  
10 same design is near-optimal for all Interleavers within a set of sizes), and 7,526,687 (creating  
11 an Interleaver design such that the same design is near-optimal for all Interleavers within a set  
12 of sizes). 11/15/12 Tr. 151-152 (Gibson); Exs. 131, 478, 481.

13 **5. Companies Other Than Motorola Have Patents On The LDPC/ Error**  
14 **Control Coding Functionality In 802.11**

15 340. Nokia Corp. disclosed at least one patent and one application as essential to  
16 802.11 relating to LDPC or error control coding: U.S. Patent No. 7,664,008 (a method for  
17 determining a number of available bits in an OFDM system using LDPC); and Application  
18 2008-0109699, which became U.S. Patent No. 7,934,146 (using LDPC in the encoding of an  
19 information block). 11/15/12 Tr. 151-152 (Gibson); Exs. 74, 61.

20 341. Cisco Systems Inc. also made contributions in the area of LDPC/error control  
21 coding: Application 11/665,171, which became U.S. Patent No. 7,996,746 (expansion of the  
22 base parity matrix to accommodate larger code rates without redesigning the parity check  
23 matrix). 11/15/12 Tr. 152 (Gibson); Ex. 97.



**6. Companies Other Than Motorola Have Patents On The Mesh Networking/Ad-Hoc Functionality In 802.11**

342. Apple Computer identified U.S. Patent No. 6,069,887 to the IEEE 802.11 Working Group, disclosing the use of time synchronization among end stations in an ad hoc network. 11/15/12 Tr. 153 (Gibson); Ex. 240.

343. Nokia disclosed application number 20060121883 to the IEEE 802.11 Working Group. The application became U.S. Patent No. 8,019,344, which discusses the hand-off mechanism of a mobile station going from one fixed-site station to the next, including applicable security. 11/15/12 Tr. 153 (Gibson); Ex. 499.

**7. Companies Other Than Motorola Have Patents On The Fragmentation/Aggregation Functionality In 802.11**

344. Microsoft's patent U.S. Patent No. 6,745,360 generally relates to fragmentation and aggregation. 11/15/12 Tr. 153 (Gibson); Ex. 503.

**VI. APPROPRIATE RAND ROYALTIES FOR MOTOROLA'S H.264 SEPs**

345. Based on the best available evidence, the range of RAND royalties for a license for Microsoft to Motorola's H.264 SEPs would be between 0.065 and 0.204 cents per unit or between \$167,000 and \$502,000 per year at current volumes. 11/16/12 Tr. 99:3-104:8 (Lynde); 11/20/12 Tr. 161:7-18 (Lynde); Exs. 1161, 1163.

346. Within that range, the best estimate for a RAND royalty for a license for Microsoft to Motorola's H.264 SEPs is 0.197 cents per unit or an annual royalty of \$474,000 at current volumes. 11/16/12 Tr. 100:3-17 (Lynde); 11/20/12 Tr. 159:7-12 (Lynde).

347. The foregoing estimates are based on the MPEG LA H.264 patent pool, which is the closest real-world comparable for the determination of RAND royalties for Motorola's H.264 SEPs. 11/13/12 Tr. 155:25-158:12 (Murphy); 11/16/12 Tr. 80:15-81:2, 84:15-86:4 (Lynde).

348. The approach taken by Microsoft's expert, Dr. Matter Lynde, is conservative. Although Motorola's H.264 portfolio related predominately to interlaced video which is of

1 little or no importance to Microsoft's products, he made no downward adjustment for that fact.

2 11/16/12 Tr. 105:2-8 (Lynde).

3 **A. Background Regarding The Formation Of The MPEG LA H.264 Patent**  
4 **Pool**

5 349. Efforts to form the MPEG LA H.264 pool, which is also known as the MPEG  
6 LA AVC pool, began in June 2003, shortly after the H.264 standard was adopted in May of  
7 that year. 11/13/12 Tr. 61:10-15 (Glanz); 11/16/12 Tr. 94:25-95:9 (Lynde).

8 350. Both Microsoft and Motorola, among many others, participated in efforts to  
9 form the MPEG LA H.264 pool. Ex. 1584 at MS-MOTO\_1823\_0002353109 (listing  
10 participants); Ex. 1139 (same); 11/13/12 Tr. 67:10-17 (Glanz).

11 351. Meetings concerning the formation of the MPEG LA H.264 pool occurred  
12 before widespread implementation of the standard. Many potential licensees were awaiting the  
13 result of both the MPEG LA pool meetings and the meetings of another pool sponsor, Via  
14 Licensing Corporation, which were occurring in the same time frame. They wanted to know  
15 the respective pool royalty rates and structures before committing to implementation of the  
16 H.264 standard. 11/13/12 Tr. 63:15-67:4, 67:5-68:1, 89:11-90:2 (Glanz).

17 352. At the time the MPEG LA H.264 pool was being formed, a number of  
18 alternative video compression technologies existed that could have been used instead of the  
19 H.264 standard, including MPEG-4 Visual, Real Video from RealNetworks, and Microsoft's  
20 own Windows Media Video. 11/13/12 Tr. 63:21-64:8 (Glanz).

21 353. The parties involved in the formation of the MPEG LA H.264 pool, including  
22 Microsoft and Motorola, sought to strike a balance between setting a royalty high enough to  
23 motivate a significant number of patent holders to contribute their patents to the pool and low  
24 enough to ensure that licensees would implement the H.264 standard rather than using one of  
25 the alternatives. 11/13/12 Tr. 74:13-76:5 (Glanz); Ex. 1642 (email string in which Motorola's  
26

1 representative to MPEG LA, Paul Bawel, noted that Motorola is “in favor of finding the right  
2 mix of terms that will result in a successful license for the marketplace”).

3 354. The general framework for MPEG LA H.264 pool royalties began to take shape  
4 during a two-day meeting on July 31 and August 1, 2003. Ex. 1581: Ex. 1139; 11/13/12 Tr.  
5 72:21-73:10 (Glanz). At that meeting, Microsoft was represented by Garrett Glanz and  
6 Motorola was represented by Paul Bawel. 11/13/12 Tr. 62:7-11, 67:10-16 (Glanz).

7 355. The main focus at this two-day meeting was the royalty amount per codec (a  
8 combination of an encoder and a decoder) and whether annual caps or some other form of  
9 volume discount should be applied. 11/13/12 Tr. 68:23-69:2, 85:20-25 (Glanz).

10 356. During the meetings, Mr. Glanz took detailed notes of the views expressed by  
11 the representatives of the approximately eighteen participating companies on each of the two  
12 days, including the views expressed by Motorola. 11/13/12 Tr. 72:21-73:10 (Glanz); Ex. 1139.

13 357. On behalf of Motorola, Mr. Bawel criticized elements of one strawman proposal  
14 that called for uncapped royalties for codecs that implement the main and extended profiles of  
15 H.264 of between \$1.50 and \$0.20 per unit depending on volume as being “too expensive for  
16 mobile” devices and stated that Motorola was in strong favor of annual caps. Ex. 1139 at MS-  
17 MOTO\_1823\_00003927604-05; 11/13/12 Tr. 80:8-9, 80:19-81:1 (Glanz).

18 358. Mr. Bawel said that if the strawman proposal with uncapped royalties were  
19 adopted, it would lead mobile manufacturers like Motorola to choose to implement video  
20 compression technologies other than H.264. 11/13/12 Tr. 80:19-81:1 (Glanz).

21 359. Mr. Bawel later indicated that, as between two other strawman proposals,  
22 Motorola favored a proposal that provided for royalties ranging from \$1.00 per unit down to  
23 \$0.20 per unit based on volumes above 50,000 (sales below that would be royalty-free) subject  
24 to annual caps of either \$2 million per business unit or \$8-10 million per enterprise. Ex. 1581  
25 at MS-MOTO\_1823\_00003927558-62 (slide deck for MPEG LA’s presentation at 7/31-8/1/03  
26

1 Meeting of AVC Essential IP Holders); Ex. 1139 at MS-MOTO\_1823\_00003927611-12  
2 (Glanz's notes from MPEG LA's 7/31-8/1/03 meeting); 11/13/12 Tr. 82:19-84:25, 86:6-10  
3 (Glanz).

4 360. On August 5-6, 2003, both Microsoft and Motorola participated in a separate  
5 meeting convened by Via Licensing Corporation ("Via"), a competitor of MPEG LA's that  
6 was also trying to establish an H.264 patent pool. At that meeting Motorola outlined the  
7 specific royalty structure it wished to have adopted: \$0.25 for manufacture and sale of each  
8 codec with annual caps of \$2 million. 11/13/12 Tr. 87:4-88:11 (Glanz); Ex. 1583 (Glanz's  
9 notes from 8/4-8/5/03 Via Licensing meeting). The amounts were a total royalty to be divided  
10 among all owners of 802.11 SEPs, assuming they could be persuaded to participate in the Via  
11 pool.

12 361. The MPEG LA meetings eventually led to a consensus on royalties in the fall of  
13 2003, culminating in a November 17, 2003 "News Release." It was intended to publicize the  
14 proposed pool royalties so that potential licensees would proceed to implement H.264 while  
15 the MPEG LA pool members worked out detailed agreements and terms. Ex. 1584 (MPEG  
16 LA's November 17, 2003 News Release); 11/13/12 Tr. 88:21-24, 89:11-90:2 (Glanz).

17 362. Motorola approved the November 2003 "News Release". It announced  
18 royalties of \$0.20 per codec after the first 100,000 units (which were at no charge) and \$0.10  
19 per unit above 5 million units, with an annual cap of \$3.5 million in year one, scaling up to \$5  
20 million over the licensing term. Ex. 1584 (MPEG LA's November 17, 2003 News Release) at  
21 2-3 (describing royalties and identifying as a cooperating patent owner); 11/13/12 Tr. 64:9-  
22 66:23(Glanz) (identifying and describing Ex. 1584 and explaining that Motorola had agreed to  
23 the terms reflected in the press release); Ex. 1179 at MS-MOTO\_1823\_2353356 (email from  
24 P. Bawel of Motorola to L. Horne of MPEG LA approving terms of release).

1           363. After receiving feedback on the terms announced in November 2003, MPEG  
2 LA made changes to the royalty structure relating to the distribution of video content.  
3 11/13/12 Tr. 91:20-92:7 (Glanz).

4           364. Motorola concurred in that change as well, stating that it was “in favor of  
5 finding the right mix of terms that will result in a successful license for the marketplace.” Ex.  
6 1642 at MS-MOTO\_1823\_00002352332; 11/13/12 Tr. 91:20-92:21 (Glanz).

7           365. MPEG LA then issued a final press release on May 18, 2004, confirming the  
8 same basic per codec royalty and caps as in the November 17, 2003 New Release. Ex. 1625  
9 (email string discussing draft final press release); Ex. 1626 (MPEG LA’s May 18, 2004 press  
10 release). 11/13/12 Tr. 93:3-94:12 (Glanz).

11           366. Motorola approved the terms of MPEG LA’s May 18, 2004 press release. Ex.  
12 1625 (email string discussing draft final press release); Ex. 1626 (MPEG LA’s May 18, 2004  
13 press release); 11/13/12 Tr. 93:3-94:12 (Glanz).

14           367. It was understood during the formative discussions among the MPEG LA H.264  
15 pool participants that the revenue sharing model would parallel that in MPEG LA’s  
16 predecessor MPEG-2 and MPEG-4 Visual patent pools: each contributing licensor would  
17 receive a share of total pool based on the licensor’s number of standard essential patents  
18 relative to the total standard essential patents in the pool for the country in question (e.g., a  
19 contributor of one patent in a pool of 100 patents would receive 1%). 11/13/12 Tr. 62:12-  
20 63:11, 131:19-132:7 (Glanz).

21           368. During the discussions regarding the formation of the MPEG LA H.264 pool,  
22 Motorola never objected to this allocation method and never stated that its patents were more  
23 valuable than the average pool patent or deserved a higher royalty. 11/13/12 Tr. 95:5-10,  
24 131:25-132:11 (Glanz).

1           369. Motorola had participated as a licensor in the earlier MPEG LA MPEG-4 Visual  
2 patent pool, which involved similar video compression technology and involved royalty rates  
3 and caps similar to those proposed for the MPEG LA H.264 pool. 11/16/12 Tr. 92:10-93:4,  
4 94:6-14, 101:5-17 (Lynde); 11/13/12 Tr. 85:13-17 (Glanz).

5           370. Motorola contributed and licensed through the MPEG LA MPEG-4 Visual pool  
6 at least one of the patents that it currently claims is essential to the H.264 standard. 11/16/12  
7 Tr. 93:5-10 (Lynde).

8           371. In explaining its decision to join the MPEG LA MPEG-4 Visual pool as a  
9 licensor, Motorola characterized the royalty rates of the pool as reasonable, observing that  
10 participation would provide Motorola with “a simple business solution for most of the patent  
11 issues at reasonable rates.” Ex. 71 at MOTM\_WASH1823\_0505113; 11/16/12 Tr. 93:11-  
12 94:14 (Lynde).

13           372. Motorola further observed that participation in the MPEG-4 Visual pool would  
14 allow Motorola to “recover a significant portion of the royalties” it would be obligated to pay,  
15 while “the cost of negotiating [its] own agreements for all the companies involved [would] cost  
16 more than the royalties it could expect to receive.” Ex. 71 at MOTM\_WASH1823\_0505113.

17           373. On July 7, 2004, Microsoft formally joined the MPEG LA H.264 pool as both a  
18 licensor and a licensee by executing (a) the MPEG LA Agreement Among Licensors  
19 Regarding the AVC Standard, which contained the royalty structure outlined in the May 18,  
20 2004 press release and the apportionment method described above; (b) the MPEG LA  
21 Licensing Administrator Agreement Regarding the AVC Standard; and (c) the AVC Patent  
22 Portfolio License. Exs. 1141, 1636, 3087.

23           374. On July 14, 2004, Microsoft learned that Motorola had decided not to join the  
24 MPEG LA H.264 pool. Microsoft received no explanation for this decision beyond the  
25 information contained in an email from MPEG LA’s CEO, Larry Horne, stating that Motorola  
26

1 had sold the patent on which it had predicated its pool membership. 11/13/12 Tr. 122:7-1  
 2 (Glanz); Ex. 124.

3 375. Because it claimed privilege during discovery as to its reasons for not  
 4 participating in the MPEG LA H.264 pool, the Court ruled *in limine* that Motorola could  
 5 present no evidence at trial concerning its reasons for not participating.

6 **B. The MPEG LA H.264 Pool Today**

7 376. The MPEG LA H.264 pool currently includes approximately 275 U.S. standard-  
 8 essential patents and over 2400 standard-essential patents worldwide. Ex. 1152.

9 377. Those standard-essential patents have been contributed by twenty-six licensors  
 10 including leading technology firms such as Apple, Cisco, Ericsson, Fujitsu, LG, Microsoft and  
 11 Sony. Ex. 1152; 11/16/12 Tr. 85:18-21, 90:11-91:20 (Lynde).

12 378. There are over 1100 licensees of the MPEG LA H.264 patent pool. 11/16/12  
 13 Tr. 85:18-21, 94:22-24 (Lynde).

14 379. Pursuant to the form MPEG LA H.264 pool agreement, licensees agree that they  
 15 if they or their affiliates have H.264 SEPs, they will license them to pool licensors on RAND  
 16 terms with the presumption that the licensor's per patent share of the royalties paid by the  
 17 licensee represent RAND terms for the licensee's SEPs. Ex. 3087 at § 8.3; 11/16/12 Tr. 95:25-  
 18 97:19 (Lynde).

19 380. The MPEG LA H.264 patent pool charges royalties to licensees for products  
 20 that incorporate an H.264 codec according to the following schedule:

- 21 • the first 100,000 units are royalty-free;
- 22 • for unit volumes between 100,000 and 5 million, the royalty is \$0.20 per
- 23 unit; and
- 24 • for unit volumes above 5 million, the royalty rate is \$0.10 per unit.

25 Ex. 3087 at §3.1.1; 11/13/12 Tr. 65:7-17, 95:14-20 (Glanz); Ex. 1626.



1           381. The foregoing per unit royalties were originally subject to the following annual  
2 caps:

- 3                   • Sales in 2005 and 2006: \$3.5 million
- 4                   • Sales in 2007 and 2008: \$4.25 million
- 5                   • Sales in 2009 and 2010: \$5 million

6 Ex. 3087 at §3.1.1; 11/13/12 Tr. 65:10-14, 95:14-20 (Glanz); Ex. 1626.

7           382. The annual enterprise cap for products containing an H.264 codec is presently  
8 set at \$6.5 million. Ex. 103 at GGMM 00000327; 11/16/12 Tr. 102:22-23 (Lynde).

9           383. Computer operating systems sold to OEM computer manufacturers would be  
10 subject to a separate annual enterprise cap of an additional \$6.5 million, for a total enterprise  
11 cap for a firm like Microsoft of \$13 million. Ex. 3087 at § 3.1.6; Ex. 103 at § 3.1.6 and  
12 GGMM00000327.

13           384. The agreement provides that royalty rates will not increase by more than 10%  
14 upon renewal of the agreement, although they have not done so. Ex. 3087 at § 6.1; 11/16/12  
15 Tr. 100:18-101:4 (Lynde).

16           385. The agreement that MPEG LA has entered with the licensors participating in the  
17 pool obliges MPEG LA use commercially reasonable best efforts to maximize the royalties  
18 generated by MPEG LA H.264 patent pool. Ex. 1636 at § 3.9.

19           **C. Google's Status As An MPEG LA H.264 Patent Pool Licensee**

20           386. Google, Inc. is a licensee of the MPEG LA H.264 patent pool. 7/12/12 Dep. of  
21 A. Lo at 30:14-17, 30:22-25, 31:4-5, 31:8-32:1, 33:8-34:7; Ex. 103.

22           387. Microsoft is explicitly named as a "Licensor" and is an intended third-party  
23 beneficiary of the Google-MPEG LA H.264 patent pool agreement. Ex. 103 at § 8.17.

24           388. The H.264 patent pool agreement includes a provision pertaining to the  
25 obligations of licensees like Google which states in full:



License Grant. Upon full execution of this Agreement, Licensee agrees to grant a worldwide, nonexclusive license and/or sublicense (commensurate to the scope of the licenses which Licensee has selected hereunder) **under any and all AVC Essential Patent(s) that Licensee and its Affiliates, if any, have the right to license and/or sublicense**, to any Licensor or any sublicensee of the Licensing Administrator desiring such a license and/or sublicense on fair and reasonable terms and conditions. For purposes of this Section 8.3 only, the Licensors' per patent share of royalties which are payable pursuant to Article 3 of this Agreement shall be presumed to be a fair and reasonable royalty rate for the aforementioned license and/or sublicense to be granted by the Licensee.

Ex. 103 at § 8.3 (emphasis added).

389. Section 8.3 of the MPEG LA H.264 patent pool agreement requires the "Licensee" to grant a worldwide, nonexclusive license under "any and all AVC Essential Patents" (H.264 essential patents) that the "Licensee *or its Affiliates*, if any, have the right to license or sublicense" under fair and reasonable terms, including specifically the "presumed" fair and reasonable royalty rate as specified. Ex. 103 (emphasis added).

390. "Affiliate," in turn, is defined in the MPEG LA H.264 patent pool agreement as "a Legal Entity [which by definition includes a corporation] which now or hereinafter, directly or indirectly, controls, is controlled by or is under common control with Licensee," where "control" includes ownership of at least 50% of the shares of the Legal Entity. Ex. 103 at §§ 1.1, 1.29.

391. As of May 22, 2012, Google acquired more than 50% of the shares of Motorola Mobility and General Instrument. 10/24/12 Pretrial Order (Dkt. # 493) at 3; 7/12/12 Dep. of A. Lo at 47:2-6, 47:9-21, 48:2-4, 48:6-8, 48:11, 48:14-15, 49:5-8, 49:11-13.

392. The presumed fair and reasonable royalty rate for a license to the H.264 SEPs of Google and its affiliates pursuant to Section 8.3 of the MPEG LA-Google H.264 patent pool agreement is "the Licensors' per patent share of royalties payable" by Google under its license agreement. Ex. 103 at § 8.3; 11/16/12 Tr. 96:12-97:3 (Lynde).

**D. The MPEG LA H.264 Pool Is The Best Indicator Of RAND Terms For Motorola's H.264 SEPs**

393. Given the timing of its formation (shortly after promulgation of the H.264 standard and before it had been widely adopted), the number and diversity of the firms that have participated as licensors and licensees in the pool, and the success of the standard, the MPEG LA H.264 patent pool is the closest real-world comparable for the determination of RAND royalties for Motorola's H.264 SEPs. 11/13/12 Tr. 155:25-158:12 (Murphy); 11/16/12 Tr. 80:15-81:2, 84:15-86:4 (Lynde).

394. Motorola's endorsement of the MPEG LA H.264 pool royalty structure (including the caps), and its participation as a licensor in MPEG LA's MPEG 4 Visual pool (which has similar royalties for related technology), further confirms that the MPEG LA H.264 pool is an appropriate benchmark in this case. 11/16/12 Tr. 91:21-94:14 (Lynde).

395. Google is a sophisticated, substantial technology firm. Google's agreement (as the parent of Motorola Mobility and General Instrument) to the grant-back license provisions in the MPEG LA-Google H.264 patent pool agreement further corroborates that the MPEG LA H.264 pool arrangement is an appropriate benchmark for determining RAND royalties in this case. 11/16/12 Tr. 95: 15-24, 97:4-11 (Lynde).

396. Motorola's expert, Richard Schmalensee, testified that pools are biased towards low rates because they are comprised of vertically-integrated firms that prefer lower royalties on their standard-compliant products. 11/16/12 Tr. 143:18-144:6 (Schmalensee).

397. This contention is undermined by Motorola's own submission to ETSI in which it emphasized that the "'dual' role of most [pool] members (IPR owners and future licensees)" would ensure that royalties were, in fact, "reasonable." Ex. 1033 at MOTM\_WASH1823\_04221107; 11/16/12 Tr. 34:18-35:10 (Simcoe).

398. Moreover, in the case of the H.264 pool, several of the licensors, including Dolby Laboratories, the Electronics and Telecommunications Research Institute ("ETRI"),

1 Fraunhofer-Gesellschaft (also known as the Heinrich Hertz Institute), and the Trustees of  
 2 Columbia University, are not vertically integrated and generate returns on their research and  
 3 development entirely through licensing revenues rather than product sales. Ex. 1152; 11/16/12  
 4 Tr. 87:18-89:7 (Lynde).

5 399. In any event, pools cannot systematically under-compensate licensors because  
 6 they need to ensure broad and diverse licensor participation in order to make the pool  
 7 successful. 11/13/12 Tr. 75:5-11 (Glanz); 11/16/12 Tr. 90:2-10 (Lynde).

8 400. Motorola has also suggested that, because pools divide royalties among the  
 9 participating licensors based on their number of patents, firms with high value patents have  
 10 little incentive to participate. 11/16/12 Tr. 146:8-147:3 (Lynde cross-examination).

11 401. There is, however, no evidence that this has been true with respect to the MPEG  
 12 LA H.264 pool, in which many leading technology firms are licensors. 11/16/12 Tr. 90:11-  
 13 91:20, 146:8-147:3 (Lynde).

14 402. In fact, Microsoft's technical expert, Professor Michael Orchard, characterized  
 15 the patents in the MPEG LA H.264 pool as "broad, covering all fundamental aspects [of the  
 16 standard], and rich." 11/14/12 Tr. 112:21-113:9 (Orchard).

17 403. In contrast, Motorola's technical expert, Timothy Drabik, offered no opinion as  
 18 to whether Motorola's patents are more or less valuable than the patents in the MPEG LA  
 19 H.264 pool. 11/19/12 Tr. 60:16-23 (Drabik).

20 404. Likewise, Kirk Dailey, the current head of patent transactions for Google, and  
 21 the former Corporate Vice President of Intellectual Property for Motorola who authored the  
 22 October 2010 demand letters that gave rise to this dispute, [REDACTED]

23 [REDACTED] 11/20/12 Tr. 34:25-35:20,  
 24 110:11-15 (Dailey); Exs. 1, 2.

1 405. Dailey did not know if [REDACTED]

2 [REDACTED]  
3 11/20/12 Tr. 68:6-10 (Dailey). And Motorola never made any claim that its patents  
4 were particularly valuable or that it was entitled to greater compensation during the formation  
5 of the MPEG LA H.264 patent pool. 11/13/12 Tr. 95:5-10, 131:25-132:11 (Glanz).

6 406. Motorola has also suggested that because patent pools involve lower transaction  
7 costs, they are inappropriate benchmarks. 11/16/12 Tr. 148:21-149:17 (Lynde cross-  
8 examination).

9 407. The fact that pools involve lower transaction costs is one of the reasons that  
10 economists feel strongly that they are pro-competitive and benefit the public. 11/16/12 Tr.  
11 147:11-17 (Lynde).

12 408. Conversely, it would be economically unreasonable to reward a firm for running  
13 up high transaction costs by make unreasonable royalty demands and requiring the counter-  
14 party to bear those excess costs in the form of a "RAND" royalty. 11/16/12 Tr. 178:13-20  
15 (Lynde).

16 409. In any event, differences in legitimate transaction costs cannot plausibly explain  
17 the enormous difference between the RAND royalties derived from the pools in this case and  
18 level of royalties demanded by Motorola. 11/16/12 Tr. 178:21-25 (Lynde).

19 **E. RAND Royalties For Motorola's H.264 SEPs Based On The MPEG LA**  
20 **H.264 Patent Pool**

21 410. Based on the licensing rates and reflecting the caps employed by the MPEG LA  
22 H.264 pool, Microsoft's economic and valuation expert, Dr. Matthew Lynde, estimated the  
23 effective per unit rates and annual royalties at current volumes that Microsoft would be  
24 expected to pay under three scenarios: (a) if Motorola received royalties equivalent to what a  
25 firm with a like-sized portfolio would receive as a licensor member of the MPEG LA H.264  
26 pool; (b) if Motorola received royalties equivalent to what it would have received if it and the

1 other holders of other readily identifiable H.264 SEPs were all added to the pool with the  
2 current pool rate structure; and (c) if Motorola received royalties equivalent to what it would  
3 have received if it and the other holders of other readily identifiable H.264 SEPs were all  
4 added to the pool at rates increased by the maximum 10 percent permitted under the MPEG LA  
5 license arrangement. 11/16/12 Tr. 99:3-101:4 (Lynde); 11/20/12 Tr. 158:10-161:18 (Lynde);  
6 Exs. 1161-62.

7 411. If Motorola received royalties based on the addition of only its patents to the  
8 MPEG LA H.264 patent pool, it would receive from Microsoft 0.197 cents per unit or  
9 approximately \$502,000 per year at current volumes. 11/16/12 Tr. 99:11-100:2 (Lynde);  
10 11/20/12 Tr. 158:21-159:12, 159:21-160:3 (Lynde).

11 412. Accounting for Motorola's claim for reciprocity (i.e. a grant back license to  
12 Microsoft's H.264 SEPs), Motorola's annual payment to Microsoft for such a license to  
13 Microsoft's H.264 SEPs using the same methodology would amount to \$248,000 per year at  
14 current volume levels or 1.12 cents per unit. 11/20/12 Tr. 159:21-160:1 (Lynde).

15 413. Thus, Microsoft's net annual payment to Motorola under a scenario where  
16 royalties for both Microsoft and Motorola's H.264 SEPs were set at a level under the MPEG  
17 LA pool equivalent to what both parties would receive as members of the MPEG LA patent  
18 pool would be approximately \$254,000. 11/20/12 Tr. 159:21-160:6 (Lynde).

19 414. To better account for royalty stacking concerns, Dr. Lynde considered the effect  
20 of adding, in addition to Motorola's 63 worldwide H.264 patents, the 89 other specific H.264  
21 SEPs that have been disclosed by companies submitting Letters of Assurance that do not  
22 presently participate in the MPEG LA patent pool under the current MPEG LA rate structure.  
23 11/16/12 Tr. 100:3-17 (Lynde).

1           415. Under this scenario, Microsoft would pay Motorola royalties of 0.185 cents per  
2 unit or approximately \$474,000 per year at current volumes. 11/16/12 Tr. 100:3-17 (Lynde);  
3 11/20/12 Tr. 160:7-15 (Lynde); Ex. 1161.

4           416. Under the same assumptions, Motorola's annual payment to Microsoft for a  
5 grant-back license to Microsoft's H.264 SEPs would be approximately \$231,000 per year or  
6 1.05 cents per unit. 11/20/12 Tr. 160:7-161:6 (Lynde); Ex. 1162.

7           417. Therefore, under a full participation scenario based on the current rates of the  
8 MPEG LA H.264 patent pool, Microsoft's net payment to Motorola would be approximately  
9 \$243,000 per year at current volumes. 11/20/12 Tr. 160:23-161:6 (Lynde).

10           418. If, in the prior scenario, the MPEG LA H.264 pool rates were increased by the  
11 full 10% permitted under the MPEG LA H.264 pool agreements, Microsoft would pay  
12 Motorola royalties of 0.204 cents per unit or approximately \$521,000 per year at current  
13 volumes. 11/16/12 Tr. 100:18-101:2 (Lynde); 11/20/12 Tr. 161:7-18 (Lynde); Ex. 1161.

14           419. Under the same assumptions, Motorola's annual payment to Microsoft for a  
15 grant-back license to Microsoft's H.264 SEPs would be approximately \$254,000 or 1.15 cents  
16 per unit. 11/20/12 Tr. 161:7-18 (Lynde); Ex. 1162.

17           420. Therefore, under a full participation scenario based on rates of the MPEG LA  
18 H.264 patent pool that are assumed to have been increased by 10%, Microsoft's net payment to  
19 Motorola would be approximately \$267,000 per year at current volumes. 11/20/12 Tr. 161:7-  
20 18 (Lynde).

21           421. The assumptions underlying Dr. Lynde's royalty estimates are conservative and  
22 favorable to Motorola because they assume that all patents that Motorola has asserted are  
23 essential to the H.264 standard are, in fact, essential and infringed. 11/16/12 Tr. 82:21-83:13  
24 (Lynde).

422. The following chart summarizes the estimates Dr. Lynde derived from the MPEG LA H.264 pool royalty rates and reflecting the applicable caps:

**RAND Royalties Based on the MPEG LA H.264 Pool**

	Per Unit Royalty Paid by Microsoft	Microsoft Annual Payment	Per Unit Royalty Paid by Motorola if Cross- License	Motorola Annual Payment if Cross-License	Net Payment to Motorola if Cross-License
As if Motorola's Patents in Pool	0.197¢	\$ 502,000	1.12¢	\$ 248,000	\$ 254,000
Motorola's and Other Identified Patents Added	0.185¢	\$ 474,000	1.05¢	\$ 231,000	\$ 243,000
Rates Increased by 10%	0.204¢	\$ 521,000	1.15¢	\$ 254,000	\$ 267,000

11/20/12 Tr. 158-61 (Lynde); Exs. 1161-62.

423. The work papers underlying Dr. Lynde's calculations based on the MPEG LA H.264 pool were admitted as Exhibits 1160-62.

**F. RAND Royalties Based On The Grant Back Provision Under Google's License With The MPEG LA H.264 Patent Pool**

424. As noted above, Google is a licensee of the MPEG LA H.264 patent pool. 7/12/12 Dep. of A. Lo at 30:14-17, 30:22-25, 31:4-5, 31:8-32:1, 33:8-34:7; Ex. 103.

425. The presumed fair and reasonable royalty rate for a license to the H.264 SEPs of Motorola Mobility and General Instrument pursuant to Section 8.3 of the MPEG LA-Google H.264 patent pool agreement is "the Licensors' per patent share of royalties payable" by Google under its license agreement. Ex. 103 at § 8.3; 11/16/12 Tr. 96:12-97:3 (Lynde).

426. Assuming that Google pays a current enterprise cap of \$6.5 million and based on the 2,458 patents in the MPEG LA pool as of today, the Licensors' per patent share of the



royalties currently payable by Google under its license are approximately \$2,644 per patent per year. Ex. 1163.

427. Given that Motorola claims to have 63 H.264 SEPs worldwide, if it received a royalty equivalent to the Licensors' per patent royalties payable by Google pursuant to Section 8.3 of Google's MPEG LA H.264 license for each of its patents, Motorola would receive approximately \$167,000 per year. Given Microsoft's current sales volume, this would come out to a per unit royalty of 0.0652 cents. 11/16/12 Tr. 102:9-25 (Lynde); Ex. 1163.

428. Exhibit 1163 sets forth the basis for Dr. Lynde's calculations based on the Google grant back provision.

## **VII. APPROPRIATE RAND ROYALTIES FOR MOTOROLA'S 802.11 SEPs**

429. Based on the evidence introduced at trial, the range of RAND royalties for a license for Microsoft to Motorola's 802.11 SEPs would be between 3 and 6.5 cents per unit. 11/16/12 Tr. 113:3-116:17, 123:25-124:13 (Lynde).

430. The best point estimate of a RAND royalty for Motorola's 802.11 SEPs within that range is 5 cents per unit or \$736,000 per year at current volumes. 11/16/12 Tr. 114:18-115:3 (Lynde).

431. The foregoing estimates are derived from the Via 802.11 patent pool and other corroborating benchmarks discussed below. 11/16/12 Tr. 123:14-124:22 (Lynde).

### **A. The Via Licensing 802.11 Patent Pool**

#### **1. Background**

432. Via Licensing formed a pool of patents essential to the 802.11 standard between 2003 and 2005. Tr. 107:11-13 (Lynde).

433. Current licensors of the Via 802.11 pool include ETRI, Japan Radio Co., Ltd., Koninklijke Philips Electronics N.V., LG Electronics, Inc., and Nippon Telegraph and Telephone Corporation. Ex. 1125.



434. The pool currently includes 35 worldwide patents essential to the 802.11 standard. 11/16/12 Tr. 112:9-11 (Lynde).

435. There are eleven licensees of the Via 802.11 pool, including five firms that are or were at one time licensors of the pool. 11/16/12 Tr. 106:25-107:4 (Lynde); Ex. 1164.

436. Current licensees that have not contributed patents to the pool include Eastman Kodak, Fujitsu, LG, Sony, and Koss. Ex. 1164.

437. On or about April 15, 2004, while the Via 802.11 pool was being formed, Motorola submitted a patent for evaluation to Via Licensing for potential inclusion in the pool. 4/18/12 Dep. R. Sonnentag at 34:13-16, 35:16-25; Ex. 45.

438. The patent submitted by Motorola was determined by Via's independent evaluator, Robert Sachs of Fenwick & West, not to be essential to the 802.11 standard. 4/18/12 Dep. of R. Sonnentag at 45:8-10, 45:17-21, 46:4-8; Ex. 12. Motorola was therefore unable to participate in the discussions which led to the setting of the Via pool royalty rates. Exs. 43, 44.

439. The 802.11 licensing pool has rates that vary from \$0.05 to \$0.55 per unit depending on the volume pursuant to the following schedule:

Units/Year	License Fee Per Unit
1 to 500,000	\$0.55
500,001 to 1,000,000	\$0.50
1,000,001 to 5,000,000	\$0.45
5,000,001 to 10,000,000	\$0.30
10,000,001 to 20,000,000	\$0.20
20,000,001 to 40,000,000	\$0.10
40,000,001 or more	\$0.05

1 Ex. 52.

2 440. As in the case of the MPEG LA H.264 pool, participating licensors receive a  
3 share of the royalties collected by the pool based upon their relative patent contributions,  
4 which is a function of the number of patents contributed to the pool relative to the total as well  
5 as the country in which the patent was granted. 11/16/12 Tr. 111:6-10, 112:21-113:2 (Lynde).

6 **2. The Via 802.11 Pool Is An Appropriate Benchmark In This Case**

7 441. Although the Via 802.11 patent pool has enjoyed less success than the MPEG  
8 LA H.264 patent pool, it nevertheless provides the best available evidence of a pool  
9 arrangement relating to the 802.11 standard. 11/16/12 Tr. 81:3-14 (Lynde); 11/13/12 Tr.  
10 159:9-11 (Murphy) ("I think it's probably the best thing we have").

11 442. The Via 802.11 pool has the virtue of being focused exclusively on the standard  
12 at issue, and it covers the same kinds of products for the same ultimate purposes as are at issue  
13 in the present dispute. 11/13/12 Tr. 158:22-159:2 (Murphy).

14 443. The Via 802.11 pool also has the key feature that it was designed to foster  
15 widespread adoption of the 802.11 standard consistent with the intent behind the RAND  
16 commitment. 11/13/12 Tr. 159:20-25 (Murphy).

17 444. Given that the 802.11 standard was first issued in 1997, however, the Via  
18 802.11 pool is not an ideal *ex ante* comparable. 11/16/12 Tr. 107:11-21 (Lynde); 11/13/12 Tr.  
19 174:9-11.

20 445. Nevertheless, to the extent that the Via 802.11 pool was formed significantly  
21 after the standard was issued, this would tend to push the rates up because of the investments  
22 had already been made and licensors would have had more leverage. 11/16/12 Tr. 107:22-  
23 108:3 (Lynde).

1           446. Likewise, the fact that the Via 802.11 pool has not achieved a large level of  
2 participation may suggest that rates have been set too high to attract licensees. 11/13/12 Tr.  
3 159:3-6 (Murphy); 11/16/12 Tr. 117:21-23 (Lynde).

4           447. For both of those reasons – the fact that the pool was formed after the standard  
5 was issued and the limited level of licensee participation – the Via 802.11 pool is a  
6 conservative benchmark because the royalty rates of the pool are likely higher than they would  
7 be had the pool been formed earlier and/or enjoyed greater licensee participation. 11/16/12 Tr.  
8 117:15-25 (Lynde).

9           448. Reliance on the Via 802.11 pool as a benchmark in this case is further supported  
10 by the fact that neither Motorola's fact nor its expert witnesses offered any evidence that  
11 Motorola's 802.11 SEPs are more valuable than the patents in the pool. 11/19/12 Tr. 119:16-  
12 12 (Williams); 11/20/12 Tr. 110:16-20 (Dailey).

### 13                   3. RAND Royalties Based on Via 802.11 Pool

14           449. Dr. Lynde estimated RAND royalties for Motorola's 802.11 SEPs based on the  
15 royalty structure of the Via 802.11 pool. 11/16/12 Tr. 113:3-116:17 (Lynde); Exs. 1155, 1165,  
16 1167.

17           450. Because of the relatively low level of participation in the pool, an appropriate  
18 analysis of a RAND royalty for Motorola's standard-essential patents using the Via Licensing  
19 pool requires assessing the royalties Motorola might expect to receive from Microsoft if more  
20 of the standard-essential patents related to 802.11 were in the Via Licensing pool and  
21 Microsoft took a license to the pool. 11/16/12 Tr. 113:9-24 (Lynde).

22           451. To assess such a scenario, Dr. Lynde adjusted the Via pool to include: (a) the  
23 263 worldwide patents of Motorola originally claimed to be essential to the 802.11 standard;  
24 (b) the 21 worldwide patents that Microsoft claims are essential to the 802.11 standard; and (c)  
25  
26

1 186 other 802.11 SEPs that have been specifically disclosed in company submissions to the  
2 IEEE. 11/16/12 Tr. 108:11-15, 113:9-24 (Lynde); Exs. 1155, 1156, 1158.

3 452. Assuming that royalty rates of the pool would remain unchanged with the  
4 addition of those patents, Microsoft would pay Motorola royalties of approximately 5 cents  
5 (\$0.05) per unit or approximately \$736,000 per year at current volumes. 11/16/12 Tr. 114:7-  
6 115:3 (Lynde); Ex. 1167.

7 453. If one assumes instead that the rates would increase by the 25% maximum rate  
8 increase permitted under the Via pool agreement, Microsoft would pay Motorola royalties of  
9 approximately 6.5 cents (\$0.065) per unit or approximately \$920,000 at current volumes.  
10 11/16/12 Tr. 115:21-116:10 (Lynde); Ex. 1167.

11 454. Accounting for Motorola's demand for reciprocity (i.e., a grant back license to  
12 Microsoft's 802.11 SEPs), and assuming the royalty rates remain unchanged, Microsoft would  
13 receive 0.45 cents (\$0.0045) per Motorola licensed unit or \$97,000 per year at current volumes.  
14 11/20/12 Tr. 162:3-163:13 (Lynde); Ex. 1167.

15 455. Therefore, under a cross-licensing scenario based on the current rates of the  
16 MPEG LA H.264 patent pool, Microsoft's net payment to Motorola would be approximately  
17 \$639,000 per year at current volumes. 11/20/12 Tr. 163:5-13 (Lynde); Ex. 1167.

18 456. Assuming the rates increased as permitted by the Via 802.11 pool arrangement,  
19 Microsoft would receive approximately 0.56 cents (\$0.0056) per Motorola licensed unit or  
20 \$121,000 at current volumes. 11/20/12 Tr. 163:14-164:9 (Lynde); Ex. 1167.

21 457. Under this scenario, Microsoft net payment to Motorola would be  
22 approximately \$799,000 per year at current volumes. 11/20/12 Tr. 164:5-8 (Lynde); Ex. 1167.

23 458. The following chart summarizes the estimates Dr. Lynde derived from the Via  
24 802.11 pool licensing rates:  
25  
26

**RAND Royalties Based on the Via Pool**

	Per Unit Royalty Paid by Microsoft	Microsoft Annual Payment	Per Unit Royalty Paid by Motorola if Cross-License	Motorola Annual Payment if Cross-License	Net Payment to Motorola if Cross-License
Current Rates	5.16¢	\$ 736,000	0.45¢	\$ 97,000	\$ 639,000
Rates Increased Per Agreement	6.45¢	\$ 920,000	0.56¢	\$ 121,000	\$ 799,000

11/20/12 Tr. 162-64 (Lynde); Exs. 1165, 1167.

459. The work papers underlying Dr. Lyndes calculations based on the Via 802.11 pool were admitted as Exhibits 1155, 1156, 1165, and 1167.

460. The foregoing estimates are highly conservative and represent a ceiling on the RAND royalties for Motorola's 802.11 SEPs because, due to the lack of available information of the total number of patents essential to the 802.11 standard, they rest on the artificial and conservative assumption that Motorola's holds a very high percentage of all 802.11 SEPs.

11/16/12 Tr. 113:12-114:17, 117:15-118:4 (Lynde).

461. Because a large number (59) of the participants in the 802.11 standards-setting process (including many of the leading firms in the wireless industry such as Sony, IBM, Atheros, Texas Instruments, Qualcomm, and Marvell) submitted only blanket Letters of Assurance to the IEEE that did not identify specific patents that may be essential the 802.11 standard, it is impossible to determine the total number of patents essential to the 802.11 standard. 11/16/12 Tr. 108:21-109:18, 110:12-15 (Lynde); Ex. 1159.

462. Marvell alone has "a few hundred" issued U.S. patents that relate "to the latest 802.11 standards." 11/14/12 Tr. 64:7-16 (Ochs).

463. As a result, there are likely thousands of patents essential to the 802.11 standard and Motorola's share of this total is significantly less than was assumed by Dr. Lynde in his

1 calculations. 11/16/12 Tr. 108:21-109:9, 113:12-114:17, 117:15-118:4 (Lynde). In this  
 2 respect, the calculations were generous to Motorola.

3 **B. Corroborating Evidence Of An Appropriate RAND Royalty For**  
 4 **Motorola's 802.11 SEPs**

5 464. Because the Via 802.11 pool is a less robust comparable, Dr. Lynde examined  
 6 other evidence to corroborate that the estimates derived from the Via 802.11 pool are  
 7 reasonable RAND royalty estimates for Motorola's 802.11 SEPs. 11/16/12 Tr. 81:15-18,  
 8 118:5-10 (Lynde).

9 **1. The Marvell WiFi Chip That Supplies 802.11 Functionality In The**  
 10 **Xbox Is The Smallest Saleable Unit For Assessing 802.11 Royalties**

11 465. Marvell Semiconductor, Inc. ("Marvell") supplies the "WiFi chips" that provide  
 12 802.11 functionality in the Xbox gaming console. 11/14/12 Tr. 62:5-13 (Ochs).

13 466. WiFi chips, such as the Marvell WiFi chip used in the Xbox, are commodity  
 14 products sold by many different companies. 11/19/12 Tr. 115 (Williams). Marvell sells these  
 15 commodity WiFi chips to many different companies, including Microsoft, Motorola, and Sony,  
 16 and they are used in a variety of different products, ranging from the Sony Playstation to the  
 17 Audi A8 automobile. 11/14/12 Tr. 63:2-10 (Ochs).

18 467. The Marvell WiFi chip implements the 802.11 standard, contains substantially  
 19 all that is needed to provide 802.11 functionality in a product like Xbox, and is intended for  
 20 that use. 11/14/12 Tr. 62:5-15 (Ochs).

21 468. Marvell's WiFi chips have no other use besides providing 802.11 functionality.  
 22 11/14/12 Tr. 62:16-18 (Ochs).

23 469. The WiFi chipset includes the ability to transmit and receive information on  
 24 radio frequency carriers, and the baseband portion of that chipset includes the intelligence to  
 25 take information from the end user and place it on the RF carrier, and take information from  
 26 the RF carrier and present it to the user. 11/19/12 Tr. 113 (Williams). The WiFi chipset

1 implements the elements of protocol for 802.11 and controls the presentation of that  
2 information to the RF system. 11/19/12 Tr. 114-15 (Williams).

3 470. Although Motorola has claimed that the Xbox stores a “pass phrase” needed for  
4 802.11 security outside of the Marvell WiFi chip (11/19/12 Tr. 98-99), the chip nevertheless  
5 provides essentially all of the 802.11 standard’s functionality and substantially embodies the  
6 patented inventions. As a result, the chip can reasonably be construed as the smallest saleable  
7 unit providing 802.11 functionality in the Xbox. 11/16/12 Tr. 158:20-160:2 (Lynde) (“To an  
8 economist, it’s obvious that chip is the smallest saleable unit ... this is the only thing that could  
9 reasonably be construed in that way, irrespective of what these technical or legal differences  
10 might be”).

11 471. Kirk Dailey, the former Vice President of Intellectual Property for Motorola,  
12 admitted that [REDACTED]  
13 [REDACTED] Motorola could therefore not double  
14 dip by collecting royalties for its 802.11 patents from both the chip supplier and the end user.  
15 11/20/12 Tr. 112:1-14 (Dailey).

16 472. In the past, Marvell has charged \$3 to \$4 per chip for WiFi chips of the kind it  
17 sells to Microsoft. 11/14/12 Tr. 62:19-21 (Ochs).

18 473. Microsoft currently pays just under \$3 per chip for the specific Marvell WiFi  
19 chip used in the Xbox gaming console. 11/15/12 Tr. 25:6-9 (Del Castillo).

20 474. It is economically advisable to focus on the smallest saleable unit when  
21 considering a reasonable royalty in order minimize the risk of assessing a royalty that captures  
22 the value of features and technologies unrelated to the patented technology in question.  
23 11/16/12 Tr. 118:11-119:4 (Lynde).

24 475. Applying even Motorola’s allegedly “standard” 2.25% royalty, which is  
25 unreasonable for a host of reasons, to the \$3 to \$4 chip that is the smallest saleable unit  
26

1 providing 802.11 functionality in the Xbox gaming console, yields a royalty of 7 to 9 cents per  
2 unit. 11/16/12 Tr. 119:12-24 (Lynde).

3 476. At Microsoft's request, Marvell sought a license from Motorola to cover the  
4 Marvell WiFi chip used in the Xbox gaming console under Motorola's 802.11 patents.  
5 11/14/12 Tr. 65:5-66:4 (Ochs); Ex. 1608.

6 477. In response to Marvell's request, Motorola offered Marvell a license to its  
7 802.11 portfolio at 2.25% of the end product price. The license did not cover Marvell's WiFi  
8 chips and specifically excluded any products sold by Microsoft or Apple. 11/14/12 Tr. 67:7-  
9 68:11 (Ochs); Ex. 16.

10 478. Marvell regarded a license that would only cover products sold by some of its  
11 customers, while specifically excluding others, to be discriminatory. 11/14/12 Tr. 68:16-19  
12 (Ochs).

13 479. At 2.25% of the end product price, the royalties sought by Motorola with  
14 respect to chips used in a product like the Xbox would exceed the selling price of Marvell's  
15 WiFi chips. 11/14/12 Tr. 69:5-70:3 (Ochs).

16 480. For a Marvell chip used in a \$100,000 Audi A8, the royalty Motorola demanded  
17 from Marvell would be \$2000.

18 481. Jennifer Ochs, Marvell's Director of IP Litigation, was not aware of any chip  
19 maker paying royalties on the price of the end product incorporating its chip. 11/14/12 Tr.  
20 71:7-10 (Ochs)

21 482. Marvell's WiFi chips are essentially commodity chips and subject to intense  
22 competition. Therefore, Marvell could not have afforded to pay the royalty rates sought by  
23 Motorola, as this would have been a "going-out-of-business-model." 11/14/12 Tr. 63:17-20;  
24 70:4-8; 93:18-94:2 (Ochs).



1 483. Marvell did not believe that Motorola's offer of a royalty of 2.25% of the end  
2 product price was a reasonable starting point for a negotiation. 11/14/12 Tr. 72:9-13 (Ochs).

3 484. Similarly, Marvell did not believe that it would be would be a reasonable  
4 starting point for a negotiation if Motorola had offered Marvell a license at 2.25% of the price  
5 of just the WiFi chip. Furthermore, if other companies with 802.11 patents sought royalties of  
6 2.25% of the price of Marvell's WiFi chips, this would lead to royalty stacking and would  
7 erase any potential profit. 11/14/12 Tr. 70:17-71:6; 72:14-17 (Ochs).

8 485. Although Marvell eventually proposed a royalty-free cross license offer to  
9 Motorola, this was not an indicator of the value of Motorola's 802.11 patents, but rather simply  
10 an attempt by Marvell to resolve the dispute. 11/14/12 Tr. 77:9-12; 91:3-92:1 (Ochs).

11 **2. The Real-World Benchmark Used By Marvell Semiconductor In**  
12 **Licensing Negotiations of The Royalties Charged By ARM Holdings**  
13 **For A License to Fundamental Semiconductor Technology**

14 486. When assessing the reasonableness of running royalties on semiconductor chips  
15 like their WiFi chips, Jennifer Ochs testified that Marvell uses the publicly-reported licensing  
16 rate of 1% of the average selling price of the chip charged by ARM Holdings for a license to  
17 its fundamental semiconductor technology. 11/14/12 Tr. 71:11-21 (Ochs).

18 487. ARM Holdings is an English company. It licenses both patents and know-how,  
19 and specializes in creating software and other tools for designing application-specific  
20 integrated circuit ("ASIC") chips. 11/16/12 Tr. 120:5-18, 121:12-15 (Lynde); Ex. 1190.

21 488. The royalties that are charged by ARM are not limited by RAND commitments.  
22 11/16/12 Tr. 122:9-11 (Lynde).

23 489. The intellectual property that Marvell licenses from ARM Holdings, which  
24 includes designs and know-how in addition to a patent license, is more valuable than a bare  
25 license to a party's 802.11 SEPs for use in making standard-compliant products only. 11/14/12  
26 Tr. 72:2-8 (Ochs).

490. Because the ARM Holdings license conveys considerable intellectual property that is ready to use, Marvell considers 1% of the average selling price of a semiconductor chip to be the “high ceiling” of what a semiconductor company should pay for a royalty on a chip. 11/14/12 Tr. 71:22-72:1 (Ochs).

491. Marvell’s reliance on the ARM Holdings royalty as a real world benchmark for assessing the reasonableness of running royalties in the semiconductor industry makes it useful corroborative evidence in this case. 11/16/12 Tr. 121:18-122:8 (Lynde).

492. Across all of the kinds of chips that it licenses, ARM Holdings earned between 5 and 9 cents per chip in royalties and licensing fees in 2011. 11/16/12 Tr. 122:17-123:8 (Lynde); Ex. 1190.

493. If one applied the ARM Holdings’ 1% royalty rate to the \$3 to \$4 WiFi chip of the type sold by Marvell to Microsoft, it would yield a royalty of 3 to 4 cents per chip. 11/16/12 Tr. 123:9-13 (Lynde). Because there is one WiFi chip in each Xbox 360 console, this equates to a royalty of 3 to 4 cents per Xbox.

494. This provides corroboration that the range of RAND royalties derived from the Via 802.11 patent pool for Motorola’s 802.11 SEPs is reasonable. 11/16/12 Tr. 123:14-18 (Lynde).

## **VIII. MOTOROLA’S EXPERTS’ OPINIONS REGARDING RAND TERMS FOR A LICENSE TO MOTOROLA’S H.264 AND 802.11 SEPS**

### **A. Motorola’s Experts’ Alleged Methodology**

495. In its Pretrial Brief, Motorola argued that the Court should “employ a modified form of the well-known *Georgia-Pacific* hypothetical negotiation, used in patent damages analysis” to determine a RAND royalty. Mot. Tr. Br. at 2. However, at trial, no Motorola witness conducted a *Georgia-Pacific* analysis, explained how *Georgia-Pacific* needed to be modified or otherwise testified about a hypothetical negotiation.

1           496. In his scholarly publications, Motorola's expert Professor Richard Schmalensee  
 2 has criticized the *Georgia-Pacific* factors because they leave the specific method of royalty  
 3 determination an open question and thus allow for considerable uncertainty in outcomes.  
 4 11/19/20 Tr. 163:4-11 (Schmalensee); Ex 293 at 681-82.

5           497. In one of his articles, Professor Schmalensee and his co-authors considered two  
 6 *ex ante* economic models – an “ECPR” model and a model based on Shapley values – and  
 7 concluded that “[w]hile the *Georgia-Pacific* factors may make good guidelines (albeit  
 8 varyingly applied by the courts) for FRAND licensing evaluations under general  
 9 circumstances, we argue that the two economic models provide *the most solid framework for*  
 10 *courts and competition authorities faced with FRAND cases.*” Ex. 293 at 675 (emphasis  
 11 added); 11/19/12 Tr. 163:15-164:13 (Schmalensee).

12           498. Nevertheless, in this case, Professor Schmalensee opined that the most  
 13 appropriate way to determine RAND royalties is to employ a modified form of the *Georgia-*  
 14 *Pacific* hypothetical negotiation framework. 11/19/12 Tr. 160:24-161:5 (Schmalensee).

15           499. He emphasized that because the *Georgia-Pacific* framework “does not  
 16 contemplate the RAND obligation,” it needs to “be modified carefully and thoughtfully to take  
 17 into account the RAND commitment.” 11/19/12 Tr. 150:8-9, 162:4-5 (Schmalensee).

18           500. Professor Schmalensee did not, however, offer any opinion as to how *Georgia-*  
 19 *Pacific* should be modified to account for the RAND obligation. Instead, he left to Motorola's  
 20 licensing expert, Charles Donohoe, “the task of modifying that [*Georgia-Pacific*] analysis in  
 21 light of the RAND commitment.” 11/19/12 Tr. 161:9-162:9 (Schmalensee).

22           501. Mr. Donohoe, in turn, [REDACTED]  
 23 (11/20/12 Tr. 137:2-138:1 (Donohoe)), [REDACTED]

24 [REDACTED]  
 25 [REDACTED] 11/20/12 Tr. 138:2-141:2 (Donohoe).  
 26

1 502. Mr. Donohoe

2  
3 11/20/12 Tr. 131:22-154:12 (Donohoe).

4 503. Mr. Donohoe failed to address the relevance or application to this case of  
5 *Georgia-Pacific* Factor 2 (the rates paid by the licensee for use of other patents comparable to  
6 the patents-in-suit). 11/20/12 Tr. 131:22-154:12 (Donohoe).

7 504. Mr. Donohoe failed to address the relevance or application to this case of  
8 *Georgia-Pacific* Factor 3 (the nature and scope of the license). 11/20/12 Tr. 131:22-154:12  
9 (Donohoe).

10 505. Mr. Donohoe failed to address the relevance or application to this case, if any,  
11 of *Georgia-Pacific* Factor 4 (the licensor's established policy of maintaining its patent  
12 monopoly). 11/20/12 Tr. 131:22-154:12 (Donohoe).

13 506. Mr. Donohoe failed to address the relevance or application to this case, if any,  
14 of *Georgia-Pacific* Factor 5 (the commercial relationship of the licensor and licensee, e.g.  
15 whether they are competitors). 11/20/12 Tr. 131:22-154:12 (Donohoe).

16 507. Mr. Donohoe failed to address the relevance or application to this case, if any,  
17 of *Georgia-Pacific* Factor 6 (the effect of selling the patented specialty in promoting sales of  
18 other products). 11/20/12 Tr. 131:22-154:12 (Donohoe).

19 508. Mr. Donohoe failed to address the relevance or application to this case, if any,  
20 of *Georgia-Pacific* Factor 7 (the duration of the patent(s) and the term of the license).  
21 11/20/12 Tr. 131:22-154:12 (Donohoe).

22 509. Mr. Donohoe failed to address the relevance or application to this case, if any,  
23 of *Georgia-Pacific* Factor 8 (the established profitability and commercial success of the  
24 products made under the patents). 11/20/12 Tr. 131:22-154:12 (Donohoe).

1           510. Mr. Donohoe failed to address the relevance or application to this case, if any,  
2 of *Georgia-Pacific* Factor 9 (the utility and advantages of the patented property over old  
3 modes). 11/20/12 Tr. 131:22-154:12 (Donohoe).

4           511. Mr. Donohoe failed to address the relevance or application to this case, if any,  
5 of *Georgia-Pacific* Factor 10 (the nature of the patented invention, the commercial  
6 embodiment, and the benefits to those who have used the invention). 11/20/12 Tr. 131:22-  
7 154:12 (Donohoe).

8           512. Mr. Donohoe failed to address the relevance or application to this case, if any,  
9 of *Georgia-Pacific* Factor 11 (the extent of use of the patented invention and evidence  
10 probative of the value of that use). 11/20/12 Tr. 131:22-154:12 (Donohoe).

11           513. Mr. Donohoe failed to address the relevance or application to this case, if any,  
12 of *Georgia-Pacific* Factor 12 (the portion of the profits or of the selling price that may be  
13 customary for use of the invention or analogous inventions). 11/20/12 Tr. 131:22-154:12  
14 (Donohoe).

15           514. Mr. Donohoe failed to address the relevance or application to this case, if any,  
16 of *Georgia-Pacific* Factor 13 (the portion of the realizable profit that should be credited to the  
17 invention as distinguished from non-patented elements). 11/20/12 Tr. 131:22-154:12  
18 (Donohoe).

19           515. [REDACTED]  
20 [REDACTED], Mr. Donohoe failed to address in any other way the relevance or application to this  
21 case of *Georgia-Pacific* Factor 14 (the opinion testimony of qualified experts). 11/20/12 Tr.  
22 131:22-154:12 (Donohoe).

23           516. [REDACTED]  
24 [REDACTED]

1 [REDACTED] *Georgia-Pacific* factors 2 through 14.

2 11/20/12 Tr. 131:22-154:12 (Donohoe).

3 **B. Mr. Donohoe's Opinions Regarding The Royalties Microsoft Should Pay**  
4 **For Motorola's 802.11 Patents**

5 517. Mr. Donohoe did not offer a RAND royalty for Motorola's 802.11 patents other  
6 than to indicate what he thought the net royalty should be for units of Xbox 360 and the  
7 network wireless adapter. 11/20/12 Tr. 142:5-44:19 (Donohoe).

8 518. In summary, Mr. Donohoe [REDACTED]

9 [REDACTED]  
10 11/20/12 Tr. 140:9-141:3 (Donohoe).  
11 [REDACTED]

12 [REDACTED]  
13 11/20/12 Tr. 141:4-25 (Donohoe).  
14 [REDACTED]  
15 [REDACTED]  
16 [REDACTED]

17 11/20/12 Tr. 144:1-19 (Donohoe).

18 519. [REDACTED]

19 [REDACTED]  
20 [REDACTED]  
21 11/20/12 Tr. 149-50 (Donohoe)  
22 [REDACTED]  
23 [REDACTED]

24 520. [REDACTED]

25 [REDACTED] 11/20/12 Tr. 148:15-18 (Donohoe).  
26 [REDACTED]

(11/20/12 Tr. 150:6-9),

521.

11/20/12 Tr. 143:12-15 (Donohoe). However, Dr. Williams did not opine

regarding the economic value of Motorola's or Microsoft's patents; he testified only as to their  
supposed technological value. 11/19/12 Tr. 133:14-15 (Williams) ("I am talking about  
technological value, not economic value."). The testimony of Dr. Williams provides no  
support for the rates selected by Mr. Donohoe.

522.

11/20/12 Tr.

152:13-153:1 (Donohoe).

523. Mr. Donohoe did not offer an opinion regarding any royalty that would be  
payable by Microsoft for a license to Motorola's H.264 SEPs on the Xbox.

**C. Mr. Donohoe's Opinions Regarding The Royalties Microsoft Should Pay  
For Motorola's H.264 Patents**

524. Mr. Donohoe did not offer a RAND royalty for Motorola's H.264 patents other  
than

11/20/12 Tr. 145:6-146:13 (Donohoe).

525. The entirety of Mr. Donohoe's testimony on the H.264 royalty

1 [REDACTED]  
2 [REDACTED]  
3 [REDACTED]  
4 [REDACTED]  
5 11/20/12 Tr. 145:6-146:15 (Donohoe).

6 526. As with his 802.11 royalty estimates, [REDACTED]  
7 [REDACTED]  
8 [REDACTED]  
9 [REDACTED]  
10 [REDACTED]  
11 11/20/12 Tr. 149-50 (Donohoe)  
12 [REDACTED]  
13 [REDACTED]

14 527. Mr. Donohoe did not explain why he used the selling price of Microsoft's  
15 Windows software as a royalty base, abandoning the position Motorola took in its October  
16 2010 demand letter that the royalty should be calculated on the price of the "end product (e.g.,  
17 each Xbox 360 product, each PC/laptop, each smartphone, etc.) and not on component  
18 software (e.g., Xbox 360 system software, Windows 7 software, Windows Phone 7 software,  
19 etc.)." Ex. 2 at MOTM\_WASH1823\_0018498.

20 528. Mr. Donohoe [REDACTED]  
21 [REDACTED]  
22 11/20/12 Tr. 146 (Donohoe). However, Dr. Drabik did not opine regarding the  
23 economic value of Motorola's or Microsoft's patents and made clear that he was not offering  
24 any opinions on that subject. 11/19/12 Tr. 50:3-6 (Drabik). The testimony of Dr. Drabik  
25 provides no support for the rates selected by Mr. Donohoe.  
26



1 529. Given Microsoft's volume of sales, [REDACTED]

2 [REDACTED]

3 [REDACTED]

4 11/20/12 Tr. 149:6-11 (Donohoe).

5 530. [REDACTED]

6 [REDACTED] 11/20/12 Tr.

7 152:13-24 (Donohoe).

8 **IX. THE ROYALTIES MOTOROLA SEEKS ARE NOT RAND**

9 **A. Motorola's Alleged Practice Of Collecting A 2.25% Royalty For Its**

10 **Portfolios Of Patents Essential To Various Cellular Communications**

11 **Standards Cannot Justify Its Demands Here**

12 531. Although Mr. Donohoe did not cite any such licenses in his testimony,

13 Motorola's former Vice President of Intellectual Property, Kirk Dailey, testified that the basis

14 for Motorola's practice of demanding 2.25% for its allegedly core essential patent portfolios

15 was its experience in the 1990s licensing its patents essential to various cellular standards.

16 11/20/12 Tr. 36:16-37:8 (Dailey).

17 532. Because Motorola's cellular licenses involve altogether different standards that

18 are more central to the licensed products – as cellular standards are to cellular handsets – those

19 agreements do not support Motorola's demand for the same royalties for its 802.11 and H.264

20 portfolios for use in complex multifunction products like the Xbox gaming consoles or

21 Windows software. 11/13/12 Tr. 160:15-162:6 (Murphy).

22 533. Professor Schmalensee agreed that, as a general matter, one would not expect

23 two patent portfolios that relate to different standards to be equal in value. 11/19/12 Tr.

24 158:16-20 (Schmalensee).

25 534. Any attempt to equate the value of Motorola's cellular and 802.11 or H.264

26 portfolios is further undermined because, while Motorola professes to have one of the most

1 valuable – if not *the* most valuable— portfolio of cellular patents in the world, Motorola’s  
 2 witnesses could not say whether its 802.11 and H.264 portfolios ranked in the top half or  
 3 bottom half of all such portfolios in terms of value. 11/20/12 Tr. 68:6-12, 87:6-8 (Dailey);  
 4 3/20/12 Dep. of K. McN. Taylor at 73:18-74:4, 208:15-209:8, 212:13-15, 213:15-16; 4/18/12  
 5 Dep. of R. Sonnentag at 68:3-11, 85:25-86:22.

6 **B. The Few License Agreements Mr. Donohoe Cites Do Not Justify The**  
 7 **Royalties That Motorola Seeks**

8 535. The sole *Georgia-Pacific* factor that Mr. Donohoe addressed in his testimony  
 9 was Factor 1, which examines the royalties received by the patentee for licensing the patents in  
 10 suit, proving to tending to prove an established royalty. [REDACTED]

11 [REDACTED]  
 12 [REDACTED]  
 13 [REDACTED] 11/20/12 Tr. 138:5-  
 14 140:23 (Donohoe); Exs. 13, 36-38, 2833.

15 536. Mr. Donohoe opined that [REDACTED]  
 16 [REDACTED]  
 17 [REDACTED]  
 18 [REDACTED] 11/20/12

19 Tr. 138:24-139:1, 139:18-25, 140:4-6, and 147:9-13 (Donohoe).

20 537. For the reasons discussed below, none of these agreement supports Mr.  
 21 Donohoe’s opinions regarding the royalties that Microsoft should or would have agreed to pay  
 22 for a license to Motorola’s 802.11 or H.264 SEPs.

23 538. Where, [REDACTED] multiple technologies (including  
 24 both standard essential and non-essential patents) are licensed within the same agreement, it is  
 25 necessary to apportion the value of Motorola’s 802.11 or H.264 SEPs from the other things  
 26 licensed. *See, e.g.*, 11/19/12 Tr. 158:21-159:16 (it would be mistake to attribute all of the

1 2.25% royalty in a license including both cellular and 802.11 patents to the 802.11 portfolio  
2 without "further information and judgment ... critical thinking and expertise") and 160:10-18  
3 (if H.264 patents were license together with patents essential to other standards, "one would  
4 need to estimate the value of the other patents and subtract it out"); 11/13/12 Tr. 162:7-18  
5 (Murphy).

6 539. Such apportionment would be difficult. 11/19/12 Tr. 160:10-19 (Schmalensee)  
7 (agreeing it would be a "pretty tough thing to do").

8 540. The difficulty in apportionment is compounded because of Motorola's practice  
9 of [REDACTED]  
10 [REDACTED] 11/20/12 Tr. 74:16-20, 74:25-75:11  
11 (Dailey) ("It make it challenging...").

12 541. Furthermore, Motorola provided no evidence that either VTech or RIM would  
13 have entered into the licenses for either Motorola's 802.11 or its H.264 patents if they were not  
14 otherwise the part of a broader licensing agreement or what royalties those portfolios would  
15 have been in absence of licenses to other patents.

16 542. Mr. Donohoe did not apportion the payments Motorola received between  
17 Motorola's 802.11 or H.264 portfolios and the other patents licensed.

18 543. The RIM and VTech licenses were entered well after the standards at issue were  
19 adopted. It is therefore possible that the agreements include an element of hold-up. 11/13/12  
20 Tr. 162:19-21 (Murphy); Ex. 1173 [REDACTED]  
21 [REDACTED]

22 **1. The VTech Agreement Is Not Comparable**

23 544. [REDACTED]  
24 11/20/12 Tr. 85:24-86:1 (Dailey).

1 545. [REDACTED]

11/20/12 Tr.

2 87:6-8 (Dailey).

3 546. On November 13, 2007, Motorola and VTech in the Eastern District of Texas  
4 accusing it of infringing six non standards-essential patents that had no RAND licensing  
5 requirements. 11/20/12 Tr. 87:19-88:5 (Dailey).

6 547. [REDACTED]  
7 [REDACTED]  
8 [REDACTED]  
9 [REDACTED]

10 11/20/12 Tr. 88:6-89:16 (Dailey); Ex. 1680.

11 548. [REDACTED]  
12 [REDACTED]

11/20/12 Tr. 89:18-22

13 (Dailey); Ex. 13 at MOTM\_WASH1823\_0394368

14 549. [REDACTED]  
15 [REDACTED]  
16 [REDACTED]

Ex. 1681 at p. 13;

17 11/20/12 Tr. 91:21-23 (Dailey).

18 550. [REDACTED]

Ex.

19 1660.

20 551. In October 2011, after Motorola had presented VTech with information about  
21 its 802.11, H.264, and cellular portfolios, VTech proposed taking a license under Motorola's  
22 802.11 and H.264 SEPs "as a part of the agreement we are trying to settle." Ex. 2832.

23 552. [REDACTED]  
24 [REDACTED]  
25 [REDACTED]

Ex. 13 at §§ 3.1(a)-(b)

1 and 4.1. [REDACTED]

2 [REDACTED] Ex. 13 at § 4.2.

3 553. Because VTech took a license to Motorola's 802.11 and H.264 portfolios only  
4 as a part of a package deal in which it also resolved Motorola's infringement claims for  
5 substantially less than Motorola had been demanding, the nominal running royalties that  
6 VTech agreed to pay for a license to Motorola's 802.11 and H.264 SEPs are not a reliable  
7 indicator of the standalone value of those portfolios. 11/13/12 Tr. 184:12-185:13 (Murphy)  
8 ("[A]s an economist I can tell you, when you see something like that, where you have terms  
9 that were negotiated together, you can't interpret the deal you got on one independent of the  
10 other. I mean, it is a package deal, as the guy is making clear here. Just read the second  
11 paragraph [of Ex. 2832]"); 192:15-193:21 ("If you look at the total value of the agreement,  
12 clearly it would be dominated by that \$12 million. My understanding is that today, under the  
13 2.25 percent, the amount VTech has paid has been very small, in the thousands, not \$12  
14 million range. And it is pretty clear ... from the letter that was originally written that the  
15 agreement to license at those rates was tied into settling ... the dispute with Motorola"). There  
16 is no evidence that VTech would have agreed to pay such royalties apart from the broader  
17 license agreement.

18 554. [REDACTED]

19 [REDACTED]  
20 [REDACTED]  
21 11/20/12 Tr. 94:9-95:14 (Dailey).

22 555. To date, VTech has paid only trivial royalties on its sales of a WiFi-enabled  
23 radio product that VTech has discontinued and is phasing out. Ex. 62 (indicating royalties on  
24 VTech's "obsolete" PIMA internet radio would be \$384 for December 2011, based on U.S.  
25  
26

1 sales for the month of 154 radios); Ex. 3373 [REDACTED]

2 [REDACTED]  
3 556. [REDACTED]

4 [REDACTED] 11/20/12 Tr. 100:10-13 (Dailey).

5 557. In fact, three months after it entered the agreement, VTech's General Counsel  
6 questioned why VTech should be required to pay royalties to Motorola for sales of H.264-  
7 compliant products because VTech is a licensee under the MPEG LA H.264 pool. Ex. 62 at  
8 MOTM\_WASH1823\_0415013 ("Given VTech's license from the original MPEG group, why  
9 would VTech need to pay Moto for use of MPEG technology?").

10 558. While VTech recently launched toy tablet products – the Innotab 2 and Innotab  
11 2S – that appear to implement the 802.11 and H.264 standards, [REDACTED]

12 [REDACTED]  
13 [REDACTED] 11/20/12 Tr. 100:14-25, 101:11-13 (Dailey). Donohoe ignored the issue.

14 **2. The RIM Agreement Is Not Comparable**

15 559. [REDACTED]

16 [REDACTED] 11/20/12 Tr. 139:2-20 (Donohoe).

17 560. There are several reasons that the RIM agreement is irrelevant to this case, at  
18 least on the present record.

19 561. First, [REDACTED]

20 [REDACTED]  
21 [REDACTED]  
22 [REDACTED] 11/20/12 Tr. 56:20-57:8, 105:7-106:11 (Dailey).

23 562. Second, [REDACTED]

1 11/20/12 Tr. 101:22-25, 104:7-13 (Dailey). There is no evidence that RIM would have agreed  
2 to royalties for either 802.11 or H.264 patents alone, apart from this broader agreement that  
3 allowed RIM to avoid an exclusion order on its BlackBerry products.

4 563. Third, while Mr. Dailey asserted that [REDACTED]

5 [REDACTED] (11/20/12 Tr. 57:9-15),  
6 [REDACTED]  
7 [REDACTED]  
8 [REDACTED]

9 [REDACTED]  
10 [REDACTED]  
11 [REDACTED]  
12 [REDACTED]  
13 Ex. 2833 at § 5.1.2.

14 564. [REDACTED]  
15 [REDACTED]

16 Ex. 2833 at §§ 1.7, 5.1.3.

17 565. [REDACTED]  
18 [REDACTED] (11/20/12 Tr. 106:21-107:6  
19 (Dailey)),  
20 [REDACTED]  
21 566. [REDACTED]  
22 [REDACTED] (Ex. 2800),  
23 [REDACTED] 11/20/12 Tr. 116:3-8, 117:7-12  
24 (Dailey).  
25  
26



1 567. Finally, far from corroborating the reasonableness of Motorola's demands in  
2 this case, [REDACTED]  
3 [REDACTED]  
4 [REDACTED]  
5 11/20/12 Tr. 102:12-103:21 (Dailey); Ex. 1672 at ¶ 83. Signing the  
6 agreement averted an ITC exclusion order covering RIM's signature product, the Blackberry.  
7 The agreed-upon royalties are therefore evidence of a hold-up royalty, not a RAND royalty.

8 **3. The Symbol Licenses Are Not Comparable**

9 568. [REDACTED]  
10 [REDACTED]  
11 [REDACTED]  
12 11/20/12 Tr. 140:1-12 (Donohoe). *See also* 11/20/12 Tr. 59:12-  
13 61:24 (Dailey) (discussing Symbol licenses); Exs. 36-38. [REDACTED]

14 [REDACTED]  
15 11/20/12 Tr. 147:9-13 (Dailey).

16 569. [REDACTED]  
17 11/20/12 Tr. 140:1-7; Ex. 36.

18 570. [REDACTED]  
19 [REDACTED]  
20 [REDACTED]  
21 11/20/12 Tr. 81:9-19 (Dailey).

22 571. [REDACTED]  
23 [REDACTED]  
24 11/20/12 Tr. 81:20-24 (Dailey).

1 572. In any event, the Symbol-Proxim agreement, [REDACTED]

2 [REDACTED]

3 [REDACTED]

4 11/20/12 Tr. 59:20-25 (Dailey); Ex. 36 at MOTM\_WASH1823\_0398586-7.

5 573. The Proxim agreement is not probative of the value of Motorola's 802.11

6 portfolio because the two patents licensed under the Proxim agreement (the '441 and '183

7 patents) had expired before Motorola's October 21, 2010 demand letter was even sent to

8 Microsoft. Ex. 1589 (summary exhibit identifying that the '441 and '183 patents expired on

9 June 29, 2009); 11/16/12 Tr. 177:15-22 (Lynde); Ex. 1.

10 574. Although Donohoe did not reference it by name, [REDACTED]

11 [REDACTED] 11/20/12 Tr. 140:1-12 [REDACTED]

12 [REDACTED]. See also 11/20/12 Tr. 60:10-61:4 (Dailey); Ex. 38.

13 575. Like the Symbol agreement with Proxim, [REDACTED]

14 [REDACTED]

15 [REDACTED] 11/20/12 Tr. 83:7-21 (Dailey); Ex. 38 at

16 MOTM\_WASH1823\_0398559.

17 576. Under the agreement, [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED] Ex. 38 at §§ 5.1 and 5.2; 11/20/12 Tr. 84:3-23 (Dailey).

21 577. [REDACTED] the Symbol-HHP

22 agreement does not support the level of royalties that Motorola seeks from Microsoft in this

23 case.

24

25

26

1 578. [REDACTED]

2 [REDACTED] 11/20/12

3 Tr. 140:1-12; Ex. 37.

4 579. [REDACTED]

6 [REDACTED] Ex. 37 at

7 MOTM\_WASH1823\_0398558.

8 580. [REDACTED]

9 [REDACTED] 11/20/12 Tr. 85:13-19 (Dailey); Ex. 37 at MOTM\_WASH1823\_0398558.

10 581. As a result, the Terabeam license does not support the reasonableness of  
11 Motorola's substantial running royalty demands in this case.

12 **C. Basing Royalties Here On A Percentage Of The Price Of Xbox Or**  
13 **Windows Software As Proposed By Motorola Is Not RAND**

14 582. Donohoe's analysis rests on the assumption that [REDACTED]

16 [REDACTED] 11/20/12 Tr. 148:15-23, 149:22-150:1 (Donohoe)

18 [REDACTED]  
19 [REDACTED]  
20 583. The Xbox, for example, is offered in a variety of bundles that differ based on  
21 the amount of memory or accessories like the Kinect sensor that are included. 11/15/12 Tr. 15-  
22 16 (Del Castillo). The 802.11 and H.264 functionality is the same across all of these bundles.  
23 11/15 Tr. 18 (Del Castillo).

24 584. In a context, such as this, where the products to be licensed can vary  
25 substantially in price for reasons that are unrelated to the patented technology at issue, a  
26 royalty based on a fixed percentage of the prices of the end products is unreasonable and would

1 reward Motorola for the value of features unrelated to its patented technology. 11/16/12 Tr.  
 2 82:3-11 (Lynde) (“[L]icensing on a percentage basis raises the risk that you have the  
 3 participation of the patentholder and payment of royalties on subject matter which is  
 4 completely divorced and separate and apart from the patent subject matter, number one, let  
 5 alone the standard. And so that is the problem and danger, especially with consumer  
 6 electronics, multicomponent sorts of end products.”); 11/16/12 Tr. 38:17-39:2 (Simcoe)  
 7 (percentage based royalties “end[] up capturing all kinds of value associated with other parts of  
 8 the product that have nothing to do with the standard or the even smaller contribution of the  
 9 patent technology that’s a small piece of the standard.”).

10 585. Motorola’s witnesses suggested that percentage-based royalties are  
 11 commonplace (*see, e.g.*, 11/20/12 Tr. 37-38 (Dailey)), but the evidence indicates that patent  
 12 pools licensing SEPs in the context of consumer electronics – including the MPEG LA H.264  
 13 and Via 802.11 pools – uniformly employ fixed amount per unit royalties. 11/16/12 Tr. 81:19-  
 14 82:2 (Lynde); 11/16/12 Tr. 38:11-16 (Simcoe).

15 586. Motorola has not established that compliance with the 802.11 or H.264  
 16 standards, much less use of any of its specific patented technology, is the basis of consumer  
 17 demand for the Windows and Xbox products on which it seeks a royalty.

18 587. Windows operating system software has thousands of features; those related to  
 19 implementation of H.264 and 802.11 standards are no more important to the product than any  
 20 of the others. 11/13/12 Tr. 28:24-29:2, 37:2-6, 39:18-21 (DeVaen).

21 588. Demand for Xbox is primarily driven by games, including the release of popular  
 22 games such as Halo, and, at times, by new accessories such as the Kinect. 11/15/12 Tr. 12:14-  
 23 20, 16:23-17:7, 18:4-12 (Del Castillo).

24 589. One of Motorola’s experts, Michael Dansky, suggested that the incorporation of  
 25 integrated WiFi capability with the introduction of the Xbox 360S in 2010 alone led to a  
 26

1 substantial increase in Xbox's market share thereafter (11/19/12 Tr. 214:15-215:5 (Dansky)),  
 2 but the Xbox 360S introduced a host of other changes to the product at the same time.  
 3 11/15/12 Tr. 15:4-15 (Del Castillo) (noting that the overall design was "refreshed," the size  
 4 reduced, operation made quieter, and new components included).

5 590. Moreover, the rise in Xbox's sales in 2010 also was driven by the introduction  
 6 of Kinect sensor, which set a record in the *Guinness Book of World Records* for the fastest sale  
 7 of a consumer electronics product. 11/15/12 Tr. 16:23-17:7 (Del Castillo).

8 **D. Mr. Donohoe's Methodology Fails To Address The Declining Value of**  
 9 **Motorola's Portfolio Resulting From The Expiration Of Motorola's Patents**


10 591. As noted above, Motorola's SEPs, particularly those relating to the 802.11  
 11 standard are rapidly expiring.

12 592. Of the eleven patents that Motorola claims are used by the Xbox, only two will  
 13 remain in force by 2015 and all will have expired by 2017. 11/20/12 Tr. 156:1-11 (Lynde); Ex.  
 14 1589.

15 593. Donohoe's methodology does not account for such patent expirations and  
 16 implies that Motorola is entitled to receive the same percentage-based royalty so long as  
 17 Motorola has even one SEP in force. 11/20/12 Tr. 156:12-22 (Lynde).

18 594. In contrast, Lynde's methodology based on the MPEG LA H.264 and Via  
 19 802.11 pools appropriately accounts for the on-going expirations of Motorola's patents because  
 20 the pools adjust the allocation of royalties annually to reflect the number of that have expired  
 21 and those that have been added the pools. 11/16/12 Tr. 104:15-105:1, 115:4-20 (Lynde);  
 22 11/20/12 Tr. 156:23-157:10 (Lynde). His methodology can therefore be employed to calculate  
 23 a new royalty for each year, taking account of patent expirations.

24 **E. The Royalties Demanded Greatly Exceed Motorola's Own Earlier Analyses**

25 595. Although Motorola seeks to justify its current royalty demands on the basis that  
 26 

1 [REDACTED] (11/20/12 Tr. [Dailey]), Motorola's  
 2 own earlier analysis of a potential 802.11 licensing program belies this claim and reveals that  
 3 Motorola – and the licensing experts it hired to assist it – valued a license to its 802.11 SEP  
 4 portfolio at substantially less than the 2.25% royalty than Motorola now demands.

5 596. In 2003, Motorola retained a consulting firm called InteCap, Inc. to develop a  
 6 patent licensing valuation model for Motorola's 802.11 SEPs. InteCap specialized in valuing  
 7 patent portfolios. In particular, InteCap was in the business of evaluating patent portfolios for  
 8 the purpose of maximizing the royalty income that could be obtained through monetization of  
 9 the portfolio. 11/16/12 Tr. 126:12-20 (Lynde).

10 597. InteCap proposed a licensing model that segmented licensing markets and target  
 11 companies into three categories or "Links":

- 12 • Link-1 companies included those that made 802.11 chipsets;
- 13 • Link-2 companies included those that made 802.11 dedicated
- 14 devices like routers and access points; and
- 15 • Link-3 companies included those who made 802.11-enabled
- 16 consumer products like laptops, PCs, and gaming consoles.

17 Ex. 65 at CRA\_001290 (identifying addressable markets for potential 802.11 licensing).

18 598. InteCap stated that, in considering licensing in the 802.11 context, "[i]ndustry  
 19 royalty stacking issues must be addressed/recognized." Ex. 65 at CRA\_001289; 11/16/12 Tr.  
 20 127:7-22 (Lynde).

21 599. InteCap's valuation model therefore recognized that the following factors must  
 22 be accounted for in setting a royalty:

- 23 • "802.11 feature factor," which InteCap defined as the "Value
- 24 of 802.11 functionality related to [the] total product
- 25 functionality"; and
- 26

- “Royalty stacking adjustment factor,” which InteCap defined as the “Factor to address [the] portion of total 802.11 functionality enabled by Motorola IP.”

Ex. 65 at CRA\_001290, CRA\_001314 (describing InteCap’s 802.11 Valuation Model Framework); 7/12/12 Dep. of D. Curtis, at 46:2-12.

600. For WiFi enabled products like PCs, laptops, and game consoles, the “feature factor” employed by InteCap was 10% of the product’s end price. The application of this factor had the effect of reducing the base to which any royalty was applied by 90% before any other adjustments were made. Ex. 65 at CRA\_001315 (“802.11 feature factor-percent of sales [=] 0.10”); 7/12/12 Dep. of D. Curtis, at 42:2-20.

601. InteCap’s valuation model assumed a 25% stacking factor, based on the assumption that Motorola held 25% of all 802.11 SEPs. This “gravely exaggerated” the extent and importance of Motorola’s 802.11 SEP portfolio. 11/16/12 Tr. 129:3-15 (Lynde). *See also* 11/16/12 Tr. 108:21-109:9 (Lynde) (stating there are thousands of patents essential to the 802.11 standard); Ex. 65 at CRA\_001288 (InteCap’s analysis assumed Motorola owned 14 802.11 technically or commercially essential patents).

602. Even accounting for Motorola’s acquisition of Symbol, Motorola still does not own anywhere near 25% of the thousands of patents essential to the 802.11 standard. 11/15/12 Tr. 143:24-144:7) (Motorola contends it owns 24 patents that are essential); 11/16/12 Tr. 108:21-109:9 (Lynde) (thousands of patents essential to the 802.11 standard); 11/14/12 Tr. 64:7-9 (Ochs) (Marvell has a few hundred issued U.S. 802.11 patents). As a result, the InteCap analysis overstates the significance of Motorola’s 802.11 SEP portfolio even today.

603. Accounting for the feature and stacking adjustment factors, InteCap’s model resulted in an effective royalty of 0.1% on the price of end products embedded with 802.11 functionality, such as PCs, laptops, and game consoles. 7/12/12 Dep. of D. Curtis at 56:8-14



1 (“[T]he final royalty rate that is produced in the model is 0.1 percent of the laptop selling price,  
2 correct? A. Correct....”); Ex. 6, at MOTO-MS-000237738 (“Assumptions: Net Royalty Rates  
3 0.1% of sales....”); Ex. 65, at CRA\_001291 (applying Valuation Model); Ex. 66, at  
4 CRA\_001708 (same).

5 604. InteCap’s model resulted in an effective royalty rate of 0.5% of the price of  
6 802.11 WiFi chips (“Link-1”), such as those sold by Marvell and Atheros. Specifically,  
7 InteCap proposed an “802.11 feature factor” of the 802.11 chips of 100%, an aggregate  
8 reasonable royalty for all industry-wide 802.11 SEPs of 2%, and a “Royalty stacking  
9 adjustment factor” to isolate Motorola’s portion of that aggregate royalty of 25% (*i.e.* – 25% of  
10 2% equals 0.5% for Motorola’s 802.11 SEPs). Ex. 65 at CRA\_001291 (applying InteCap  
11 model); Ex. 66, at CRA\_001708 (same).

12 605. The Motorola STAMP Board consisted of senior representatives from each  
13 Motorola business segment who made decisions about what to do with Motorola intellectual  
14 assets. 7/12/12 Dep. of D. Curtis at 15:10-16:1 (explaining role and makeup of STAMP  
15 Board).

16 606. In August 2003, Motorola’s STAMP Board formed an 802.11 Licensing Work  
17 Group to develop a proposal for licensing Motorola’s 802.11 SEPs. 7/12/12 Dep. of D. Curtis,  
18 at 17:14-18, 19:11-16, 24:25-25:6.

19 607. In September 2003, the 802.11 Licensing Work Group made recommendations  
20 to the STAMP Board regarding licensing Motorola’s 802.11 SEPs. 7/12/12 Dep. of D. Curtis,  
21 at 35:16-36:2.

22 608. In its final presentation to the STAMP Board, the 802.11 Licensing Work  
23 Group based its recommendation on InteCap’s analysis indicating that Motorola should license  
24 its portfolio of 802.11 SEPs for an effective royalty of 0.1% on the price of products like PCs.  
25 7/12/12 Dep. of D. Curtis, at 75:23-77:12, 79:7-80:23; Ex. 6, at MOTO-MS-000237738.  
26

1           609. In forming its recommendations to the STAMP Board, the 802.11 Licensing  
2 Work Group did not consider the fact that Motorola had committed to make its 802.11 SEPs  
3 available on RAND terms. 7/12/12 Dep. of D. Curtis, at 38:16-39:23.

4           610. Motorola subsequently initiated licensing discussions with at least two  
5 PC/laptop makers, Gateway and Acer. In connection with its effort to license Gateway,  
6 Motorola developed projections of what Gateway would pay, using 0.1% of the end product  
7 price as the assumed royalty rate. 7/12/12 Dep. of D. Curtis, at 68:1-4; Ex. 67 (9/25/03 D.  
8 Curtis email stating, "Adjusted Royalty rate of 1% (4% with 25% royalty stacking). Feature  
9 functionality is 10%. In essence, the final royalty then is 0.1%. You'll note that on a \$1500  
10 machine, this equates to \$1.50.").

11           **F. Motorola's Survey Evidence Is Flawed And Does Not Justify The Royalties**  
12           **It Seeks**

13           611. Neither the opinions of Motorola's survey expert, Dr. R. Sukumar, nor any  
14 conclusions he may have drawn from the results of his surveys were placed in evidence.  
15 Instead, Dr. Sukumar generically referred to certain demonstrative exhibits characterized by  
16 Motorola's counsel as "summarizing" the results of his work. These demonstrative exhibits  
17 were not admitted as substantive evidence and Dr. Sukumar did not provide substantive  
18 testimony regarding their contents. 11/19/12 Tr. 189 (Sukumar) (Court admitting document  
19 "as a demonstrative and tak[ing] up the admission as a summary after the conclusion of [the]  
20 examination"); 205 (Court ruling that Exs. 3423 and 3424 would be treated demonstratives  
21 and indicating that the information is "in columns that I don't believe accurately portray the  
22 actual survey data.").

23           612. Even if otherwise admissible, the conclusions stated in Dr. Sukumar's  
24 demonstrative exhibits differed materially from those expressed in his expert report, and were  
25 excluded as substantive evidence for this additional reason, as more specifically stated below.  
26

1           613. Dr. Sukumar testified that he conducted two surveys; one related to the 802.11  
2 standard and one related to the H.264 standard. The former “was meant to assess Xbox users’  
3 connectivity to the internet” and the latter “was meant to understand the kind of activity Xbox  
4 consumers perform on-line.” 11/19/12 Tr. 185 (Sukumar).

5           614. In his expert report, Dr. Sukumar concluded that 100% of all Xbox users  
6 connect to the Internet. This conclusion, which he attempted to change in the demonstrative  
7 exhibits used in his testimony, was entirely misleading because Dr. Sukumar had excluded  
8 from the survey all Xbox users who did not use their Xbox to connect to the Internet. 11/19/12  
9 Tr. 200 (Sukumar) (Dr. Sukumar’s report stated that “[t]he survey results indicate that 100  
10 percent of Xbox users have connected to the internet using at least one of the options  
11 presented,” and Dr. Sukumar testified that respondents were disqualified from proceeding with  
12 the survey if they “reported that they did not use their Xbox to connect to the internet.”).

13           615. Dr. Sukumar also concluded in his expert report that the average Xbox user  
14 spends 13 hours per week using their Xbox. But Dr. Sukumar also attempted to change this  
15 conclusion in his inadmissible demonstrative exhibits because, remarkably, he had excluded  
16 from his survey all respondents who use their Xbox for less than one hour a week. 11/19/12  
17 Tr. 202 (Sukumar) (Dr. Sukumar’s report concluded “that on average Xbox users spend 13  
18 hours per week on their consoles,” but he testified that he excluded “anyone who had spent  
19 under one hour a week using the Xbox”).

20           616. Dr. Sukumar’s survey also included a number of confusing technical questions,  
21 which render the survey responses unreliable. For example, survey questions QH5A1 and  
22 QH5A2 asked respondents to indicate whether they had viewed “progressive”, “interlaced”, or  
23 “MBAFF”-encoded video content on their Xbox console (connected to their TV). 11/19/12 Tr.  
24 193 (Sukumar) (describing survey questions QH5A1 and QH5A2).

1           617. Dr. Sukumar did not pre-test these questions because they were supplied to him  
2 by counsel after he already completed his pre-tests. 11/19/12 Tr. 186 (Sukumar) (“When I  
3 received the request to add those additional questions, the pretests had already been  
4 completed”).

5           618. As explained in the Federal Judicial Center’s Reference Manual on Scientific  
6 Evidence, a well-known and respected publication, unclear survey questions can distort  
7 responses and can justify rejection of the survey:

8                   When unclear questions are included in a survey, they may  
9                   threaten the validity of the survey by systematically distorting  
10                  responses, if respondents are misled in a particular direction, or by  
11                  inflating random error if respondents guess because they do not  
                  understand the question. If the crucial question is sufficiently  
                  ambiguous or unclear, it may be the basis for rejecting the survey.

12           Tr. Ex. 3035 (Reference Manual on Scientific Evidence, 2d Ed., Federal Judicial Center 2000,  
13 at p. 248 - “Reference Guide on Survey Research”); 11/19/12 Tr. 195-97 (Sukumar)  
14 (identifying Reference Guide on Survey Research as part of Ex. 3035 and confirming it as “a  
15 well-known and respected publication”).

16           619. Despite generally agreeing with the above statement, Dr. Sukumar claimed that  
17 “questions as straightforward and uncomplicated as QH5A1 and QH5A2 do not necessarily  
18 need to be pretested.” 11/19/12 Tr. 197 (Sukumar).

19           620. These questions are far from clear. When he prepared the survey, Dr. Sukumar  
20 did not even know the meaning of the terms or whether it was possible to discern how a video  
21 had been encoded simply by looking at the television screen. 11/19/12 Tr. 193-195 (Sukumar)  
22 (did not know “whether it was possible to discern from looking at the TV set whether you were  
23 viewing interlaced, or progressive, or MBAFF video” and did not “know what progressive,  
24 interlaced, or MBAFF meant”).

621. In fact, as Professor Orchard explained, it is unlikely survey respondents would know what those terms mean and that even he could not discern whether video on an Xbox uses MBAFF or was interlaced. 11/14/12 Tr. 145-46 (Orchard).

622. Had these questions been timely supplied to Dr. Sukumar, he “absolutely” would have pre-tested them. 11/19/12 Tr. 195 (Dr. Sukumar “absolutely” would have pretested the questions had they been timely provided to him, “No doubt about it.”).

**G. Motorola’s Experts’ Focus On The Importance Of Standards, Rather Than The Value Of Motorola’s Patented Technology, Reflects An Attempt At Hold-Up**

623. The testimony and evidence presented by Motorola’s experts, particularly Michael Dansky, related overwhelmingly to the importance of the 802.11 and H.264 standards to Microsoft’s products, as opposed to the importance of the technologies allegedly covered by Motorola’s patents.

624. For example, Mr. Dansky did not discuss any particular Motorola patent. 11/19/12 Tr. 206:4-219:23; 11/20/12 Tr. 8:16-23:6.

625. Dansky did not estimate how much of the value of the 802.11 or H.264 standards was attributable to Motorola’s standard essential patents. 11/20/12 Tr. 26-27 (Dansky).

626. Although Dansky holds himself out as an expert in valuing patents, he did not value Motorola’s H.264 and 802.11 patents. 11/20/12 Tr. 27 (Dansky).

627. Rather, Dansky presented testimony solely relating to the importance of the 802.11 and H.264 standards to Microsoft products. *See, e.g.*, 11/19/12 Tr. Trans. at 209: 15-19. 210:2-6 (Dansky) (discussing importance of including 802.11 standard in products); 11/20/12 Tr. Trans. at 17:15 – 22 (Dansky) (discussing that “H.264 standard has become the standard, and that there is concern that when products are sold, that they need to be able to decode and code H.264.”); at 17:23 – 18:2 (Dansky) (discussing importance of H.264 for

1 tablets and smartphones) Ex. 2684, 3383, and 2686 [REDACTED]  
2 Ex. 2515, and 2747 (emphasizing popularity of H.264 video codec); Ex. 2724 (discussing  
3 importance of H.264 video to Xbox).

4 628. Mr. Dansky's approach thus reflects an improper attempt by Motorola to  
5 capture the value of the 802.11 and H.264 standards as opposed a royalty on the value of its  
6 patented technology. 11/13/12 Tr. 151-52 (Murphy) ("A RAND royalty must reflect the  
7 economic value of the patented technology itself and not the value attributable to the  
8 standard."); 11/19/12 Tr. 168-69 (Schmalensee) (a SEP holder is "not entitled to the  
9 incremental value that you get because you are part of the standard").

10 629. Mr. Dansky's approach further highlights the risk that a bilateral negotiation in  
11 this context would yield hold-up because the more successful a standard is, and the more  
12 critical it becomes, the more leverage a holder of SEPs obtains. 11/16/12 Tr. 129-30 (Lynde).

13 630. Indeed, in such a context, it only takes one essential patent to hold up a potential  
14 licensee, because an injunction against infringement of that patent could halt the sale of  
15 standard-compliant products. 11/16/12 Tr. Trans. at 130:24-131:1 (Lynde).

16 **H. The Royalties That Motorola Seeks Raise Significant Stacking Concerns**

17 631. There are more than 100 firms that claim to hold patents essential to the 802.11  
18 standard. 11/15/12 Tr. 99-100 (Gibson); Exs. 7, 1592. Given the number of such firms, if they  
19 all sought royalties of 2.25% of the price of the Xbox like Motorola, the aggregate royalty  
20 would swamp the price of the product. 11/13/12 Tr. 145-46 (Murphy) ("if each of the other 91  
21 standard essential patentholders ... also asked for two-and-a-quarter percent, the total royalty  
22 demand would be 204.75% ... plus Motorola's 2.25, would give a total demand of 207 percent.  
23 Obviously, if I'm a product producer, I can't afford to pay royalties for 802.11 for 207 percent  
24 of the product price.").

1           632. If even a dozen other firms holding patents essential to the 802.11 standard  
2 sought and obtained royalties equivalent to Motorola's demand of 2.25% of the price of the  
3 Xbox, the aggregate royalty to implement 802.11, which is only one feature of the product,  
4 would exceed 25% of the total product price.

5           633. Likewise, there are 26 firms with patents essential to the H.264 standard in the  
6 MPEG LA H.264 pool and at least another 24 firms that have submitted either blanket or  
7 specific Letters of Assurance to the ITU claiming to have patents potentially essential to the  
8 H.264 standard that are not part of the MPEG LA pool. Exs. 1152, 1153, 1154.

9           634. If even ten of those firms sought and obtained royalties of \$100 million for the  
10 alleged use of their H.264 SEPs in Windows, which is at the low end of the range that  
11 Motorola demands here, Microsoft would be required to pay over \$1 billion per year to  
12 implement just one of thousands of features in Windows.

13           635. As Dr. Lynde explained, "[i]f everyone wanted the same deal [as Motorola], it  
14 would quickly make the end-product price untenable commercially." 11/16/12 Tr. 179:1-8  
15 (Lynde).

16           636. Motorola attempted to minimize the significance of these potential royalty  
17 stacking issues by arguing that stacking has not, to date, been an impediment to the  
18 implementation of the H.264 and 802.11 standards. 11/13/12 Tr. 177-179 (Murphy cross-  
19 examination); 11/16/12 Tr. 139-41 (Lynde cross-examination); 11/19/12 Tr. 148  
20 (Schmalensee).

21           637. It is the case that, historically, many patent holders have refrained from  
22 asserting their SEPs. 11/13/12 Tr. 160 (Murphy) ("the most common rate is actually zero ...  
23 [t]hat is the dominant rate that occurs in the marketplace in the 802.11 space"); 11/19/12 Tr.  
24 174 (Schmalensee) ("patent rights are often not asserted in this part of the world").



1           638. Pools have also helped to address stacking concerns. 11/13/12 Tr. at 179  
2 (Murphy) (“I think patent pools, in particular the H.264 pool, has helped, as have RAND  
3 commitments”).

4           639. There is a risk, however, that the dynamics that help mediate royalty stacking  
5 now will break down – and stacking will become a significant problem – if RAND  
6 commitments are not enforced in a way that prevents hold-up and is sensitive to aggregate  
7 royalties. 11/13/12 Tr. 150-51 (“RAND commitment plays a very central role in most analyses  
8 of saying why we’ve been able to mitigate that problem [of stacking and hold-up]. That is, if  
9 you have the RAND commitment ... and people are held to it, that they have to charge  
10 reasonable royalties, then one can solve both of those problems. But it requires that people be  
11 held to those RAND commitments. ... And the RAND commitment and enforcing the RAND  
12 commitment ... is central to making that system work and preserving the state where, in fact,  
13 those problems won’t materialize.”) 151:4-12 (Murphy) (“99 percent of the time, or more,  
14 people reach the deal and abide by the contract without ever setting foot in court. What’s  
15 important to make the contracts work, without the court, is that when you end up in the court  
16 those contracts are enforced.”); 11/13/12 Tr. 151:4-7 (Murphy) (“Well, I think this more  
17 speaks to what potentially could happen. The reason why you can’t say it hasn’t been a  
18 problem up until now, to say it won’t be a problem later. I mean, that’s true of most  
19 contracts.”).

20           640. Given these potential risks, royalty stacking concerns should not be ignored. As  
21 noted above, Motorola’s own licensing consultants, InteCap, insisted that “[i]ndustry royalty  
22 stacking issues must be addressed/recognized” in the 802.11 space. Ex. 65 at CRA\_001289.

23           641. And Jennifer Ochs, the head of IP litigation for Marvell, testified that royalty  
24 stacking is a concern for Marvell because “the profit margin on semiconductor chips is quite  
25  
26

1 small, and at 2.25 percent of even the chip price, you can't pay too many royalties before you  
2 just run out of profit." 11/14/12 Tr. 71:1-6 (Ochs).

3 642. Finally, Motorola itself told ETSI that royalty stacking was a real concern. Ex.  
4 1031 at MOTM\_WASH1823\_0420998 ("the increasing tendency for multi-function, multi-  
5 technology products means that there are ever more patents covering the end product, giving  
6 rise to the phenomenon of so-called 'royalty stacking.' Overall, cumulative royalties are  
7 perceived to be uncertain and often too high, possibly even prohibitive."); 11/16/12 Tr. 25:16-  
8 27:1, 66:3-16 (Simcoe) (describing Motorola's proposal to ETSI).

### 9 CONCLUSIONS OF LAW

10 643. This is a breach of contract action. See Dkt. No. 335, Summary Judgment  
11 Order (June 6, 2012) at 1, 21. See also *Microsoft Corp. v. Motorola, Inc.*, No. 12-35352, --  
12 F.3d --, 2012 WL 4477215, at \*1 (9th Cir. Sept. 28, 2012) ("The underlying case before the  
13 district court concerns how to interpret and enforce patent-holders' commitments to industry  
14 standard-setting organizations."); *id.* at \*9 ("The district court's conclusion[] that Motorola's  
15 RAND declarations to the ITU created a contract enforceable by Microsoft as a third-party  
16 beneficiary (which Motorola concedes) . . . [was] not legally erroneous."). Washington  
17 contract law applies. Dkt. No. 335 at 15.

18 644. The issue being adjudicated in this bench trial is the determination of a  
19 reasonable and nondiscriminatory ("RAND") royalty for the Motorola patents essential to the  
20 802.11 and H.264 standards. *Id.* at 7-8, 26; Dkt. No. 346, Minute Entry (June 18, 2012).

21 645. The determination of a RAND royalty for a patent holder's standard-essential  
22 patents subject to a RAND licensing commitment is a justiciable issue. See Dkt. No. 335,  
23 Summary Judgment Order (June 6, 2012) at 25-27. See also *Microsoft*, 2012 WL 4477215, at  
24 \*10 ("Whatever the appropriate method of determining the RAND licensing rate, it could well  
25 be that retrospective payment at the rate ultimately determined and a determination of the  
26

1 future rate, not an injunction banning sales while that rate is determined, is the only remedy  
 2 consistent with the contractual commitment to license users of ITU standard-essential  
 3 patents.”); Dkt. No. 312-1, April 11, 2012 Hearing Tr. 28:7–16; 40:13–19; *Apple, Inc. v.*  
 4 *Motorola, Inc.*, No. 1:11-cv-08540, 2012 WL 2376664, at \*11 (N.D. Ill. June 22, 2012)  
 5 (describing a “proper method of computing a FRAND royalty”).

6 646. A RAND royalty should reflect the value of the patented technology, but not the  
 7 benefit or utility of the standard as a whole. *Apple*, 2012 WL 2376664, at \*11 (“The purpose  
 8 of the FRAND requirements . . . is to confine the patentee’s royalty demand to the value  
 9 conferred by the patent itself as distinct from the additional value—the hold-up value—  
 10 conferred by the patent’s being designated as standard-essential.”); *See also* Layne-Farrar,  
 11 Padilla, and Schmalensee, “Pricing Patents For Licensing in Standard-Setting Organizations:  
 12 Making Sense of FRAND Commitments,” 74 *Antitrust L.J.* 671, 672 (2007). A RAND royalty  
 13 rests on the value of the patent, before adoption or implementation of the standard, in light of  
 14 available alternatives that could have been adopted instead. The primary consideration is the  
 15 added benefit, if any, that stems from using the patented technology, separate and apart from  
 16 its incorporation in the standard. *E.g.*, Swanson & Baumol, “Reasonable and  
 17 Nondiscriminatory (RAND) Royalties, Standard Selection, and Control of Market Power,” 73  
 18 *Antitrust L.J.* 7–11 (2005)

19 647. The patent holder is not entitled to be compensated for the value of complying  
 20 with the standard after the standard has been widely implemented. *Microsoft*, 2012 WL  
 21 4477215, at \*1 (“[S]tandards threaten to endow holders of standard-essential patents with  
 22 disproportionate market power. In theory, once a standard has gained such widespread  
 23 acceptance that compliance is effectively required to compete in a particular market, anyone  
 24 holding a standard-essential patent could extract unreasonably high royalties from suppliers of  
 25 standard-compliant products and services. This problem is a form of ‘patent holdup.’”); *Apple*,

1 2012 WL 2376664, at \*11 (“[O]nce a patent becomes essential to a standard, the patentee’s  
2 bargaining power surges because a prospective licensee has no alternative to licensing the  
3 patent; he is at the patentee’s mercy.”).

4 648. A RAND royalty should account for the contributions of others to the standard  
5 such that if every contributor sought a royalty, the aggregate “stacked” royalty for all essential  
6 patents would remain reasonable.

7 649. Other license agreements may be relevant to determining a RAND royalty,  
8 provided:

9 a. The licenses are comparable and provide a sound basis for deriving a  
10 royalty for the standard-essential patents at issue. *See LaserDynamics, Inc. v. Quanta*  
11 *Computer, Inc.*, 694 F.3d 51, 79 (Fed. Cir. 2012) (“When relying on licenses to prove a  
12 reasonable royalty, alleging a loose or vague comparability between different technologies or  
13 licenses does not suffice.”); *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 872 (Fed. Cir.  
14 2010) (“[Courts] must consider licenses that are commensurate with what the defendant has  
15 appropriated. If not, a prevailing plaintiff would be free to inflate the reasonable royalty  
16 analysis with conveniently selected licenses without an economic or other link to the  
17 technology in question.”); *Lucent Techs. v. Gateway, Inc.*, 580 F.3d 1301, 1329 (Fed. Cir.  
18 2009) (reasonable royalty verdict “cannot stand solely on evidence which amounts to little  
19 more than a recitation of royalty numbers, one of which is arguably in the ballpark of the jury’s  
20 award, particularly when it is doubtful that the technology of those license agreements is in any  
21 way similar to the technology being litigated here”).

22 b. The licenses reflect the value conferred by the patent itself as distinct  
23 from the additional or hold-up value conferred by the patent’s being designated as standard-  
24 essential, *see Apple*, 2012 WL 2376664, at \*11 (“The purpose of the FRAND requirements . . .  
25 is to confine the patentee’s royalty demand to the value conferred by the patent itself as distinct  
26

1 from the additional value—the hold-up value—conferred by the patent’s being designated as  
 2 standard-essential.”); and

3 c. The licenses do not result from negotiations between licensees and the  
 4 patent holder where the licensees were under duress. Dkt. No. 318, Preliminary Injunction  
 5 Order (May 14, 2012) at 24; *Microsoft*, 2012 WL 4477215, at \*2 (“More generally, Justice  
 6 Kennedy has suggested that injunctions against patent infringement ‘may not serve the public  
 7 interest’ in cases where ‘the patented invention is but a small component of the product the  
 8 companies seek to produce and the threat of an injunction is employed simply for undue  
 9 leverage in negotiations.’”), quoting *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 396–97  
 10 (2006) (Kennedy, J., concurring). See Dkt. No. 375-2 (FTC Statement) (“[T]he threat of an  
 11 exclusion order may allow the holder of a RAND-encumbered SEP to realize royalty rates that  
 12 reflect patent hold-up, rather than the value of the patent relative to alternatives”); *Apple*, 2012  
 13 WL 2376664, at \*12 (citing FTC Statement). See also *LaserDynamics*, 694 F.3d at 77  
 14 (collecting cases and noting that “[t]he propriety of using prior settlement agreements to prove  
 15 the amount of a reasonable royalty is questionable”); *Hanson v. Alpine Valley Ski Area*, 718  
 16 F.2d 1075, 1079 (Fed. Cir. 1983) (“[L]icense fees negotiated in the face of a threat of high  
 17 litigation costs may be strongly influenced by a desire to avoid full litigation.”) (quotation  
 18 marks omitted).

19 650. The entire market value rule dictates that the revenues from sales of a multi-  
 20 component product, where the particular patents at issue relate only to some of the components  
 21 of the product, cannot be used as a royalty base for a reasonable royalty unless the patents form  
 22 the basis for customer demand for the entire multi-component product. See *Sheldon v. Metro-*  
 23 *Goldwyn Pictures Corp.*, 309 U.S. 390, 402 (1940); *Dowagiac Mfg. Co. v. Minnesota Moline*  
 24 *Plow Co.*, 235 U.S. 641, 645–51 (1915); *Westinghouse Elec. & Mfg. Co. v. Wagner Elec. &*  
 25 *Mfg. Co.*, 225 U.S. 604, 614–15 (1912); *Garretson v. Clark*, 111 U.S. 120, 121 (1884); *Velo-*  
 26

1 *Bind, Inc. v. Minnesota Min. & Mfg. Co.*, 647 F.2d 965, 973 (9th Cir. 1981); *LaserDynamics*,  
2 694 F.3d at 67-68 (“We reaffirm that in any case involving multi-component products,  
3 patentees may not calculate damages based on sales of the entire product . . . without showing  
4 that the demand for the entire product is attributable to the patented feature.”); *Lucent*, 580  
5 F.3d at 1336. The purpose of the rule is to ensure that a patentee does not recover the value of  
6 unpatented features as part of a royalty award; rather, a royalty award must be strictly tied to  
7 the value of the invention. *USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1318 (Fed. Cir. 2011)  
8 (“The entire market value rule allows a patentee to assess damages based on the entire market  
9 value of the accused product only where the patented feature creates the ‘basis for customer  
10 demand’ or ‘substantially create[s] the value of the component parts.’”).

11 651. The entire market value rules cannot be evaded simply applying a low-enough  
12 royalty rate to the sales of entire products. *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694  
13 F.3d 51, 67 (Fed. Cir. 2012). There is no exception to the entire market value rule simply  
14 because the patented feature is otherwise important or critical to the product—it must be shown  
15 that the feature is the basis for customer demand before a reasonable royalty may be based on  
16 sales of the products. *Id.* at 67–68. And there is no exception to the entire market value rule  
17 for claimed practical or economic necessity of basing a royalty on sales of the product. *Id.* at  
18 69.

19 652. Patents cannot have a greater value when subject to a RAND commitment, and  
20 there is no basis in precedent, logic, or economic policy for not applying the entire market  
21 value rule that limits recovery on a given patent in the context of determining a RAND royalty.  
22 If anything, the rationale for applying the entire market value rule is even more compelling in  
23 the RAND context because of the underlying reasonableness and non-discriminatory  
24 requirements. Therefore, the revenues from sales of a standard-compliant multi-component  
25 product, where the particular patents at issue relate to only some of the components of the  
26

1 product, should not be used as a royalty base for a RAND royalty unless the patents (not  
 2 simply the standard itself) form the basis for customer demand for the entire multi-component  
 3 product.

4 653. Patent exhaustion “provides that the initial sale of a patented item terminates all  
 5 patent rights to that item.” *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 625  
 6 (2008). Exhaustion merely requires the authorized sale of a component substantially  
 7 embodying an invention, and the Supreme Court has specifically held that a product may  
 8 substantially embody an invention *even if* additional components are necessary to practice the  
 9 patent. *Id.* at 631–34. A product substantially embodies a patent for the purposes of patent  
 10 exhaustion if it “embodie[s] essential features of [the] patented invention” and its “only  
 11 reasonable and intended use [is] to practice the patent.” *Id.* at 631.

12 654. The factors set forth in *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F.  
 13 Supp. 1116 (S.D.N.Y. 1970), were developed in the context of reasonable royalty patent  
 14 damages and have been allowed by the Federal Circuit for use in that context. Care must be  
 15 exercised in relying on the *Georgia-Pacific* factors to determine a RAND royalty for standard  
 16 essential patents, for at least the following reasons:

17 a. Factors 3 (“The nature and scope of the license, as exclusive or non-  
 18 exclusive; or as restricted or non-restricted in terms of territory or with respect to whom the  
 19 manufactured product may be sold”) and 7 (“The duration of the patent and the term of the  
 20 license”) are resolved by the RAND commitment because RAND licenses to standard-essential  
 21 patents must be non-exclusive and unrestricted in terms of duration and territory, and with  
 22 respect to whom the licensee may sell its standard-compliant products. *Georgia-Pacific* factor  
 23 4 (“The licensor’s established policy and marketing program to maintain his patent monopoly  
 24 by not licensing others to use the invention or by granting licenses under special conditions  
 25 designed to preserve that monopoly”) is also resolved by the RAND commitment because the  
 26



1 patent holder is obligated to license its standard-essential patents to any other party and cannot  
2 grant licenses under special conditions designed to preserve a monopoly. *See Microsoft*, 2012  
3 WL 4477215, at \*9 (“Implicit in such a sweeping promise is, at least arguably, a guarantee that  
4 the patent-holder will not take steps to keep would-be users from using the patented material,  
5 such as seeking an injunction, but will instead proffer licenses consistent with the commitment  
6 made.”).

7           b. *Georgia-Pacific* factor 5 (“The commercial relationship between the  
8 licensor and licensee, such as, whether they are competitors in the same territory in the same  
9 line of business; or whether they are inventor and promoter”) is inconsistent with the RAND  
10 commitment, because the patent holder is obligated to license its standard-essential patents to  
11 any party on non-discriminatory terms, and cannot discriminate between licensees based on  
12 their commercial relationship to the licensor, whether they are competitors, whether they are  
13 inventor and promoter, or on any other grounds.

14           c. Consideration of certain other *Georgia-Pacific* factors in the standard-  
15 essential patent context may lead to the improper capture of the value of standardization,  
16 especially where the standard—as intended by the standard-setting organization—has been  
17 successful and widely adopted. These include factors 6 (“The effect of selling the patented  
18 specialty in promoting sales of other products of the licensee; the existing value of the  
19 invention to the licensor as a generator of sales of his non-patented items; and the extent of  
20 such derivative or convoyed sales”); 8 (“The established profitability of the product made  
21 under the patent; its commercial success; and its current popularity”); 9 (“The utility and  
22 advantages of the patent property over the old modes or devices, if any, that had been used for  
23 working out similar results”); 10 (“The nature of the patented invention; the character of the  
24 commercial embodiment of it as owned and produced by the licensor; and the benefits to those  
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1 who have used the invention”); 11 (“The extent to which the infringer has made use of the  
2 invention; and any evidence probative of the value of that use”).

3 d. Certain other *Georgia-Pacific* factors, if applied in the standard-essential  
4 patent context, may lead to unreasonable, excessive royalties by focusing on the licensee’s  
5 profits from selling standard-compliant products, where the standard itself is only one of a  
6 multitude of product features, and the patent holder’s patents cover only a fraction of the  
7 standard. These include factors 12 (“The portion of the profit or of the selling price that may  
8 be customary in the particular business or in comparable businesses to allow for the use of the  
9 invention or analogous inventions”) and 13 (“The portion of the realizable profit that should be  
10 credited to the invention as distinguished from non-patented elements, the manufacturing  
11 process, business risks, or significant features or improvements added by the infringer.”).

12 e. The defined boundaries of the hypothetical negotiation contemplated by  
13 *Georgia-Pacific* factor 15 may also be inconsistent with the RAND commitment, because  
14 compensating a standard-essential patent holder by the amount a licensee “would have been  
15 willing to pay” to obtain complete access to the standard, may lead to an unreasonable  
16 aggregate royalty burden on the standard. Further, the contractual RAND licensing  
17 commitment displaces any independent threshold of minimum compensation which “would  
18 have been acceptable [to] a prudent patentee.”

19 655. Determining reasonable royalties as informed by consideration of Georgia-  
20 Pacific factors requires fully analyzing the applicable factors; mere conclusory remarks about  
21 each factor’s impact on a reasonable royalty are insufficient. *Whitserve, LLC v. Computer*  
22 *Packages, Inc.*, 694 F.3d 10, 31-32 (Fed. Cir. 2012).

23 656. An expert’s opinion that lacks any support in the record is a worthless *ipse dixit*.  
24 See *General Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997); *Wendler & Ezra, P.C. v. Am.*  
25 *Intern. Group, Inc.*, 521 F.3d 790, 791 (7th Cir. 2008) (per curiam) (“An expert who supplies  
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nothing but a bottom line supplies nothing of value to the judicial process.”) (quotation marks omitted); *Hathaway v. Bazany*, 507 F.3d 312, 318 (5th Cir. 2007) (“[A]n expert’s testimony that ‘it is so’ is not admissible.”).

657. The proponent of survey evidence must establish that the survey was conducted in accordance with generally accepted survey principles. *See Sugar Ass’n, Inc. v. McNeil-PPC, Inc.*, No. 04-10077, 2008 WL 4755611, at \*3 (C.D. Cal. Jan. 7, 2008) (internal citations omitted). Absent evidence that a survey was conducted in accordance with generally accepted survey principles, including the use of a representative sample, the survey results can be disregarded. *Id.*; citing *Keith v. Volpe*, 858 F.2d 467, 480 (9<sup>th</sup> Cir. 1988).

658. The inclusion of unclear questions in a survey threatens the validity of the survey by systematically distorting responses, if respondents are misled in a particular direction, or by inflating random error if respondents guess because they do not understand the question. If the questions are sufficiently ambiguous or unclear, they form a basis for rejecting the survey entirely. Shari Seidman Diamond, Reference Manual on Scientific Evidence: Reference Guide on Survey Research § IV.A at 248 (Ex. 3035); *see also 1-800 Contacts, Inc. v. Lens.com, Inc.*, No. 07-00591, 2010 WL 5186393, at \*7 (D. Utah Dec. 15, 2010) (excluding survey in part based upon ambiguous question which was not pre-tested); *Competitive Edge, Inc. v. Staples, Inc.* 763 F. Supp. 2d 997, 1008–09 (N.D. Ill. 2010) (granting motion to strike survey expert report in part because survey questions were “replete with potential ambiguities” open to multiple interpretations).

659. A “means-plus-function” claim covers only structures that the specification clearly associates with the claimed function. *Medtronic, Inc. v. Advanced Cardiovascular Systems, Inc.*, 248 F.3d 1303, 1311 (Fed. Cir. 2001) (quoting *B Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997)). Where the alleged disclosed structure is a computer or microprocessor, the disclosed structure cannot be a general purpose computer, but

1 rather must be a special purpose computer programmed to perform an algorithm. *WMS*  
 2 *Gaming, Inc. v. International Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). The patent  
 3 must disclose enough of an algorithm to provide the necessary structure under § 112, ¶ 6 to the  
 4 satisfaction of one of ordinary skill in the art. *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d  
 5 1323, 1340 (Fed. Cir. 2008). *See also Aristocrat Technologies Australia Pty Ltd. v.*  
 6 *International Game Techn.*, 521 F.3d 1328, 1333. "A patentee cannot avoid providing  
 7 specificity as to structure simply because someone of ordinary skill in the art would be able to  
 8 devise a means to perform the claimed function. To allow that form of claiming under section  
 9 112, paragraph 6, would allow the patentee to claim all possible means of achieving a  
 10 function." *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F. 3d 1371, 1385 (Fed. Cir. 2009); *see*  
 11 *also Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1300-02  
 12 (Fed. Cir. 2005).

13 DATED this 14<sup>th</sup> day of December, 2012.

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**CERTIFICATE OF SERVICE**

I, Linda Bledsoe, swear under penalty of perjury under the laws of the State of Washington to the following:

1. I am over the age of 21 and not a party to this action.
2. On the 17<sup>th</sup> day of December, 2012, I caused the preceding document to be served on counsel of record in the following manner:

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s/ Linda Bledsoe  
LINDA BLEDSOE